OMB No. 2040-0042 Approval Expires 12/31/2018

United States Environmental Protection Agency
Washington, DC 20460

Completion Form For Injection Wells

Administrative Information

1. Permittee: Florence Copper Inc.

Address *(Permanent Mailing Address) (Street, City, and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

2. Operator: Florence Copper Inc.

Address *(Street, City, State and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

3. Facility Name: Florence Copper Inc.

Telephone Number: (520) 374-3984

Address *(Street, City, State and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

4. Surface Location Description of Injection Well(s)

State: Arizona

County: Pinal

Surface Location Description

SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1080 ft. frm (N/S) N Line of quarter section and 1000 ft. from (E/W) E Line of quarter section.

Well Activity

- [ ] Class I
- [ ] Class II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] Class III
- [ ] Other

Well Status

- [x] Operating
- [ ] Modification/Conversion
- [ ] Proposed

Type of Permit

- [ ] Individual
- [x] Area : Number of Wells 33

Lease Number: NA

Well Number: WB-02

Submit with this Completion Form the attachments listed in Attachments for Completion Form.

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Ian Ream, Senior Hydrogeologist		9-12-2018

Attachments to be submitted with the Completion report:

I. Geologic Information

1. Lithology and Stratigraphy

A. Provide a geologic description of the rock units penetrated by name, age, depth, thickness, and lithology of each rock unit penetrated.

B. Provide a description of the injection unit.

(1) Name
(2) Depth (drilled)
(3) Thickness
(4) Formation fluid pressure
(5) Age of unit
(6) Porosity (avg.)
(7) Permeability
(8) Bottom hole temperature
(9) Lithology
(10) Bottom hold pressure
(11) Fracture pressure

C. Provide chemical characteristics of formation fluid (attach chemical analysis).

D. Provide a description of freshwater aquifers.

(1) Depth to base of fresh water (less than 10,000 mg/l TDS).
(2) Provide a geologic description of aquifer units with name, age, depth, thickness, lithology, and average total dissolved solids.

II. Well Design and Construction

1. Provide data on surface, intermediate, and long string casing and tubing. Data must include material, size, weight, grade, and depth set.

2. Provide data on the well cement, such as type/class, additives, amount, and method of emplacement.

3. Provide packer data on the packer (if used) such as type, name and model, setting depth, and type of annular fluid used.

4. Provide data on centralizers to include number, type and depth.

5. Provide data on bottom hole completions.

6. Provide data on well stimulation used.

III. Description of Surface Equipment

1. Provide data and a sketch of holding tanks, flow lines, filters, and injection pump.

IV. Monitoring Systems

1. Provide data on recording and nonrecording injection pressure gauges, casing-tubing annulus pressure gauges, injection rate meters, temperature meters, and other meters or gauges.

2. Provide data on constructed monitor wells such as location, depth, casing diameter, method of cementing, etc.

V. Logging and Testing Results

Provide a descriptive report interpreting the results of geophysical logs and other tests. Include a description and data on deviation checks run during drilling.

VI. Provide an as-built diagrammatic sketch of the injection well(s) showing casing, cement, tubing, packer, etc., with proper setting depths. The sketch should include well head and gauges.

VII. Provide data demonstrating mechanical integrity pursuant to 40 CFR 146.08.

VIII. Report on the compatibility of injected wastes with fluids and minerals in both the injection zone and the confining zone.

IX. Report the status of corrective action on defective wells in the area of review.

X. Include the anticipated maximum pressure and flow rate at which injection will operate.

HALEY & ALDRICH, INC.
One Arizona Center
400 E. Van Buren St., Suite 545
Phoenix, AZ 85004
602.760.2450

TECHNICAL MEMORANDUM

14 September 2018
File No. 129687-010

TO: Florence Copper Inc.
Ian Ream, Senior Hydrogeologist

FROM: Haley & Aldrich, Inc.
Lauren Candreva, R.G.

Subject: Drilling, Installation, and Integrity Testing Summary
PTF Westbay Well WB-02
Florence Copper Inc., Florence, Arizona

This document summarizes the drilling, installation, and testing of Production Test Facility (PTF) Westbay well WB-02 for Florence Copper Inc. (Florence Copper) in Florence, Arizona, including the equipment used to perform the work, completion, and the results of well testing activities. Separate well completion reports have been created for each PTF well.

The Arizona Department of Water Resources Registry ID for well WB-02 is 55-227227 and the Well Registry Report is included in Appendix A. The well is located in the southwest quarter of the northeast quarter of the southwest quarter of Section 28 of Township 4 north, Range 9 East of the Gila and Salt River Baseline and Meridian (D(4-9)28CAC). The well is located within the Underground Injection Control (UIC) Permitted Area of Review (AOR) for UIC Permit R9UIC-AZ3-FY11-1 and was completed as a Class III multi-level monitoring well for the PTF (Figure 1).

Florence Copper contracted Hydro Resources, Inc. (Hydro Resources) to drill, install, and test well WB-02 in accordance with *Bid Specification: Drilling, Installation, and Testing of Class III Westbay Wells, Production Test Facility, Florence, Arizona* (Haley & Aldrich, Inc. [Haley & Aldrich], 2017). A Midway 3500 drilling rig was used for all drilling and construction activities. Haley & Aldrich provided oversight of drilling activities, geophysical logging, well installation, and testing. All reported depths are in feet below ground surface unless otherwise noted.

I. Geologic Information

1. Lithology and Stratigraphy

A. Geology of Penetrated Units

The geology penetrated during the drilling of the Class III well WB-02 is summarized below and a lithologic log is included in Appendix B.

Lithologic Unit Name	Depth to Bottom of Unit (feet)	Thickness of Unit (feet)	Lithology and Age of Unit
Upper Basin Fill Unit (UBFU)	283	283	Alluvium; Quaternary to Tertiary
Middle Fine-Grained Unit (MFGU)	300	17	Alluvium; Tertiary
Lower Basin Fill Unit (LBFU)	385	85	Alluvium; Tertiary to Cretaceous
Bedrock Oxide Unit (Oxide)	Not encountered	>819	Igneous porphyry; Precambrian

B. Description of Injection Unit

Name	Bedrock Oxide Unit
Depth drilled	1,204 feet
Thickness	>819 feet
Formation fluid pressure	Atmospheric plus head of freshwater; no additional formation pressure
Age of unit	Precambrian with intrusions of Precambrian to Tertiary rocks
Porosity[1]	Approximately 6 to 8.5%
Permeability	Hydraulic conductivity = 0.56 feet per day
Bottom hole temperature	28.8 degrees Celsius
Lithology	Igneous porphyry: quartz monzonite, granodiorite with diabase and andesite dykes (detailed log included in Appendix B)
Bottom hole pressure	Approximately 410 pounds per square inch (PSI) (pressure exerted by the column of freshwater with no additional contribution from formation pressure)
Fracture pressure	0.65 PSI per foot

[1] Porosity values for the bedrock oxide unit are approximate values from calculated neutron porosity values from injection well borehole surveys.

C. Chemical Characteristics of Formation Fluid

The chemical characteristics of the formation fluid in the injection zone are summarized below and are the sampling results from the center PTF wellfield well, R-09. The table below summarizes the primary chemical characteristics detected in a formation fluid sample collected on 23 April 2018; the complete analytical report is included in Appendix C.

Analyte	Result (mg/L)
Metals	
Aluminum	<0.08
Antimony	<0.005
Arsenic	0.0016
Barium	0.071
Beryllium	<0.0005
Cadmium	<0.00025
Calcium	140
Chromium	0.0051
Cobalt	<0.00025
Copper	0.011
Iron	<0.30
Lead	<0.0005
Magnesium	27
Manganese	0.002
Mercury	<0.001
Nickel	0.0033
Potassium	6.8
Selenium	<0.0025
Sodium	170
Thallium	<0.0005
Zinc	<0.04
Anions	
Bicarbonate	150
Chloride	310
Fluoride	<0.5
Nitrate	8.8
Sulfate	190
Field Parameters	
Total Dissolved Solids	1,000
pH	7.8
Radiochemicals	
Uranium	0.016
Notes: *mg/L = milligrams per liter*	

Results of the sampling of well WB-02 are included in the *PTF Mine Block Ambient Groundwater Concentrations and Initial Discharge Characterization of the Underground Workings* (Brown and Caldwell, 2018).

D. Description of Freshwater Aquifers

1) The depth to the base of the freshwater aquifer is defined by the interface where deeper formation fluid exhibits a total dissolved solids (TDS) value of 10,000 milligrams per liter (mg/L). The depth of the 10,000 mg/L interface is deeper than all of the wells drilled at the site and consequently has not been defined.

2) The geologic description of the aquifer units is included below:

Aquifer Unit Name	Age	Depth (feet)	Thickness (feet)	Lithology	Average Total Dissolved Solids[1] (mg/L)
UBFU	Quaternary/Tertiary	0 to 283	283	Alluvium	914
LBFU	Tertiary	300 to 385	85	Alluvium	754

[1] Average TDS values calculated from UBFU and LBFU monitoring well ambient monitoring results near the PTF.

II. Well Design and Construction

1. Well WB-02 Casing Installed

Casing	Material	Diameter (inches)	Weight (pounds per foot)	Depths (feet)	Borehole Diameter (inches)	Drilling Method
Surface	Mild steel	14 O.D. 13⅜ I.D.	47.36	0 to 40	20	Solid-stem auger
Well casing	FRP	4.5 O.D. 3.75 I.D.	3.54	-1.7 to 500	12¼	Reverse flooded rotary
Screen	PVC Sch. 80 with 0.020-inch wide slots	4.5 O.D. 3.83 I.D.	2.78	563 to 573 704 to 714 844 to 854 985 to 994 1,124 to 1,135	12¼	Reverse flooded rotary
Blank intervals	PVC Sch. 80	4.5 O.D. 3.83 I.D.	2.78	498 to 563 573 to 704 714 to 844 854 to 985 994 to 1,124 1,135 to 1,175	12¼	Reverse flooded rotary

Notes:
FRP = fiberglass-reinforced plastic
I.D. = inside diameter
O.D. = outside diameter
PVC = polyvinyl chloride
Sch. = Schedule

2. Well Cement

Cement Interval	Cement Type	Additives	Amount Installed (cubic yards)	Method of Emplacement
Surface casing	Type V Neat 21 sack slurry	None	5.5	Submerged tremie
Well casing	Type V Neat 21 sack slurry	None	22.8	Submerged tremie

Field forms documenting pipe tallies, annular materials, and cement tickets are included in Appendix D.

3. Annular Packers

No annular packers were used during construction of well WB-02.

4. Centralizers

Casing	Centralizer Type	Number and Spacing
Well – FRP and PVC	Stainless steel – heavy duty	31 installed – every 40 feet
Notes: *FRP = fiberglass-reinforced plastic* *PVC = polyvinyl chloride*		

5. Bottom Hole Completion

There is no bottom hole completion, as this is not an oil/gas well. The well was completed at the bottom with a stainless-steel endcap of the same diameter as the well screen.

6. Well Stimulation

No well stimulation was used during the drilling and construction of well WB-02.

III. Description of Surface Equipment

1. Surface Equipment

Well WB-02 is a multi-level sampling well and has been equipped with a discrete multi-level sampling system designed and installed by Westbay Instruments. The wellhead has been equipped with a well seal; the Westbay tubing extends from the well seal and is capped when not in use.

IV. Monitoring Systems

1. Well monitoring equipment

Equipment Type	Location	Type	Purpose
Annular Conductivity Sensors	Well annulus	Non-recording	Monitor formation conductivity

2. Monitoring Wells

A total of 16 monitoring wells are associated with the PTF: 7 point-of-compliance (POC) wells, 7 United States Environmental Protection Agency (USEPA) supplemental monitoring wells, and 2 operational monitoring wells. The POC wells are located outside the AOR and are not constructed as Class III wells. The supplemental monitoring and operational monitoring wells are located within the AOR and are constructed as Class III wells as required by the UIC Permit. The wells are summarized in the tables below by type.

POC Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval (feet)**	**Screened Lithologic Unit**
M14-GL	846750.23 746461.52	859	5 9/16 OD	Submerged tremie	778 to 838	LBFU
M15-GU	846697.17 746464.82	615	5 9/16 OD	Submerged tremie	554 to 594	LBFU
M22-O	846751.26 746514.47	1,140	5 9/16 OD to 528 feet; 4½ OD to 1,140 feet	Submerged tremie	932 to 1,130	Oxide
M23-UBF	846688.13 746512.48	250	6 5/8 OD	Submerged tremie	210 to 250	UBFU
M52-UBF	851092.00 774178.00	274	5 9/16	Submerged tremie	198 to 273	UBFU
M54-LBF	847331.96 746682.61	630	5 9/16	Submerged tremie	310 to 629	LBFU
M54-O	847342.99 746702.36	1,199	5 9/16	Submerged tremie	668 to 1,198	Oxide
OD = outside diameter						

Supplemental Monitoring Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval (feet)**	**Screened Lithologic Unit**
M55-UBF	847541.46 746280.63	261	5	Submerged tremie	240 to 260	UBFU
M56-LBF	847518.70 746303.41	340	5	Submerged tremie	320 to 340	LBFU
M57-O	847378.37 746248.93	1,200	5	Submerged tremie	523 to 1,199	Oxide
M58-O	847672.23 746595.97	1,200	5	Submerged tremie	594 to 1,199	Oxide
M59-O	847934.95 746218.89	1,201	5	Submerged tremie	534 to 1,199	Oxide
M60-O	847599.37 745903.70	1,201	5	Submerged tremie	444 to 1,200	Oxide
M61-LBF	848184.46 746148.88	629	5	Submerged tremie	429 to 629	LBFU

Operational Monitoring Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval**	**Screened Lithologic Unit**
MW-01-LBF	847487.97 746360.54	444	5	Submerged tremie	330 to 440	LBFU
MW-01-O	847499.04 746369.31	1,200	5	Submerged tremie	500 to 1,200	Oxide

V. Logging and Testing Results

Borehole geophysical logging was conducted on well WB-02 in two phases: 1) open-hole surveys in the 12.25-inch borehole prior to installation of the well casing and screen, and 2) cased-hole surveys in the completed well.

The open-hole geophysical surveys completed at well WB-02 included:

- Spontaneous potential;
- Natural gamma;
- Electrical resistivity (short and long normal);
- Caliper with calculated volume;

- Temperature;
- Sonic; and
- Deviation.

The cased-hole geophysical surveys completed included:

- Sonic (for cement bond with fiberglass-reinforced plastic [FRP]);
- 4 pi density (for cement bond with FRP);
- Dual density (for cement bond with FRP);
- Natural gamma;
- Fluid conductivity;
- Temperature;
- Gyroscopic deviation survey; and
- Video survey.

Open-hole geophysical surveys were used to support identification of the lithologic contacts, to evaluate the condition of the borehole, and to evaluate the deviation of the borehole.

The primary logs used to evaluate lithologic contacts were natural gamma ray, short (16-inch) and long (64-inch) normal electrical resistance, and single-point resistance.

The lithologic contacts for the Middle Fine-Grained Unit (MFGU) were selected based on the short and long resistance and the single-point resistance. All the resistivity values decreased and remained consistently low through the MFGU. This contact is generally characterized by a relatively sharp decrease in resistance at the top of the unit and a gradual increase in resistance below the bottom of the unit.

The contact between the Lower Basin Fill Unit (LBFU) and the bedrock was identified primarily using the natural gamma and correlated with the resistance logs. There is a consistent increase in gamma values at the contact between the LBFU and the bedrock that was identified and documented at the site during exploration in the 1990s. For well WB-02, the gamma values are consistent at approximately 60 American Petroleum Institute (API) units throughout the Upper Basin Fill Unit (UBFU) and MFGU, increase slightly to approximately 70 API units in the LBFU, and then increase at approximately 385 feet to over 140 API units. After the increase at 385 feet, the natural gamma begins to vary more than in the alluvial units. This change in the response of the natural gamma indicates the contact with the bedrock unit. Also, at this approximate depth, there is an increase in the single-point and the short normal resistance, indicating that the formation has become more resistant. This feature likely occurs primarily because the bedrock contains less water than the alluvial formation above.

Cased-hole geophysical surveys were conducted to evaluate the cement seal and the casing-cement bond, to document baseline fluid temperature and conductivity, and to evaluate the plumbness of the well. The cement bond is discussed in Section VII.

Copies of all the open-hole geophysical logs and cased-hole temperature, fluid conductivity, and natural gamma are included in Appendix E; a figure summarizing the open-hole logs used to evaluate the geology is included as Figure 3. The cased-hole logs used to evaluate the cement bond are included in Appendix F**.**

VI. Well As-Built Diagram

An as-built diagram for well WB-02 is included as Figure 2.

VII. Demonstration of Mechanical Integrity

A demonstration of Part I mechanical integrity of the well was completed using a standard annular pressure test (SAPT) in accordance with Part II.E.3.a.i.A of the UIC Permit. Mechanical integrity will be demonstrated every 2 years during operations and will be confirmed by daily injection pressure monitoring that will be conducted per the UIC Permit once the well is operational. The SAPT for Well WB-02 is summarized below.

The SAPT was conducted by installing an inflatable straddle packer assembly in the well. The bottom packer was installed near the bottom of the FRP-cased portion of the well, the top packer was near the surface, the packers were inflated to form a seal against the casing. The bottom 5 feet of the packer drop pipe was perforated to allow for communication between the tubing and the annulus of the packer assembly. The drop pipe extended through the wellhead and a high pressure/low volume pump was attached to the drop pipe to pressurize the test interval. A valve on the drop pipe at the surface was used to isolate the test interval once the planned test pressure was achieved.

An In-Situ LevelTROLL® pressure transducer with a data logger was installed at the well head and was connected to the packer assembly annulus interval via a National Pipe Thread adapter. The LevelTROLL was used to monitor and record pressure inside the well during the SAPT. To conduct the SAPT, water was pumped from a nearby well immediately prior to testing. Before the water was pumped into the test well, the water temperature was measured to ensure that it was similar to the ambient groundwater temperature of the test well to reduce the potential of differential temperature effects on the well casing. The SAPT for the Class III well was conducted by applying hydraulic pressure to the well casing and shutting in pressure between the packer and wellhead assembly, monitoring the shut-in pressure for a 30-minute period, then measuring the volume of water returned from the well casing after the pressure was released.

On 20 April 2018, the packer was installed to approximately 483 feet and the SAPT was conducted successfully two times. The USEPA SAPT form, a table of the data, and a chart of the data is provided in Appendix G.

Part II mechanical integrity is demonstrated by the cementing records included in this report (in accordance with Part II.E.3.ii.C of the UIC Permit) and will be demonstrated during operations by annular conductivity monitoring on the observation and multi-level sampling wells (in accordance with Part II.E.3.a.ii.A of the UIC Permit).

Cemented Interval	Cement Type	Calculated Grout Volume (cubic yards)	Installed Grout Volume (cubic yards)
Surface Casing	Type V 21 sack neat cement slurry	3.1	5.5
Well Casing	Type V 21 sack neat cement slurry	21.3	22.8

On 19 April 2018, a suite of geophysical logs was run over the entire length of the completed well to verify the grout seal. A summary of the logs completed to demonstrate cement bond are included in Appendix F.

There is not a bond log tool designed to evaluate cement bond with FRP casing, so the cement interval with FRP casing of WB-02 was evaluated using density logs. The logs collected included sonic, focused density, and 4pi density. Based on the measured density of the FRP cased interval of WB-02, no significant cement deficiencies were noted in the sonic data collected from approximately 251 feet (static water level) to 468 feet, and no significant deficiencies were noted in the 4pi density data collected from 38 to 478 feet. There were some very localized, low density intervals identified in the 4pi density logs but they were insignificant, only extending 2 to 3 feet. A summary of the FRP cased data is included in the well completion summary in Appendix F.

VIII. Compatibility of Injected Waste

The Florence Copper Project is a Class III mineral extraction project and does not include the injection of any waste products of any kind. The injected fluid (lixiviant) is a carefully constituted in-situ copper recovery solution that will be recovered and recycled following injection.

The compatibility of the lixiviant was evaluated as part of the geochemical modeling completed by Florence Copper and summarized in the *Geochemical Evaluation to Forecast Composition of Process Solutions for In-Situ Copper Recovery Pilot Test Facility at Florence Copper, Florence Arizona* (Daniel B. Stephens Inc., 2014) which was included in Attachment H of the UIC Permit Application.

IX. Status of Corrective Action on Defective Wells in the Area of Review

There are not currently any defective wells in the AOR.

X. Maximum Pressures and Flow Rates for WB-02

Maximum Operating Pressure	Maximum Flow
Atmospheric	Not applicable – sampling well

This well is a multi-level sampling well used to monitor migration of mining solution in the formation. No fluids will be injected, and only small volumes of fluid will be extracted to evaluate solution in the formation; extraction will use Westbay sampling equipment.

XI. Well Development

Well WB-02 was developed by the airlift method, followed by pumping; development was completed by Hydro Resources using a workover rig. To purge drilling fluids and solids, the well was airlift developed from 14 to 15 April 2018 at depths ranging from 420 to 1,175 feet. During development, the airlift pump was turned on and off to surge the well. On 15 April 2018, approximately 33 gallons of chlorine were added to the well.

To pump develop the well, a submersible pump was temporarily installed at approximately 1,100 feet on 16 April 2018. Pump development was conducted at 13 gallons per minute from 16 to 18 April 2018, during which time the submersible pump was raised to 550 feet and periodically turned off to surge the well. The discharge was visually clear throughout the pump development period, and turbidity values were less than 10 Nephelometric Turbidity Units at the end of the development period. Well development forms are included in Appendix H.

XII. Well Completion

A well video survey was conducted on 19 April 2018; the video log report is included in Appendix I**.** The video log depths are presented in feet below the top of the casing and thus vary slightly from what is recorded; however, these values are the same with the correction for stick up.

The video log indicates the top of fill in the well is at 1,172 feet.

A gyroscopic survey was also conducted on the completed well on 19 April 2018; the results are included in Appendix I.

The surveyed location for well WB-02 is as follows:

Northing (feet)	Easting (feet)	Measuring Point Elevation (feet amsl)
746131.33	847730.23	1478.57

Notes:
Northing and easting locations provided in State Plane North American Datum 1983, vertical location provided in North American Vertical Datum 1988.
amsl – feet above mean sea level

XIII. Downhole Equipment

The equipment installed in WB-02 is Westbay multi-level sampling equipment installed by Westbay Instruments. Diagrams of the installed equipment are included in Appendix J.

The type and depth of equipment installed in each well is not constrained by the UIC Permit or the Aquifer Protection Permit (APP). This information is provided in accordance with Section 2.7.4.3 of the APP. Operational considerations may require that the type and depth of equipment be changed in response to conditions observed during operations.

XIV. References

Brown and Caldwell, Inc., 2018. *PTF Mine Block Ambient Groundwater Concentrations and Initial Discharge Characterization of the Underground Workings*. Prepared for Florence Copper. August.

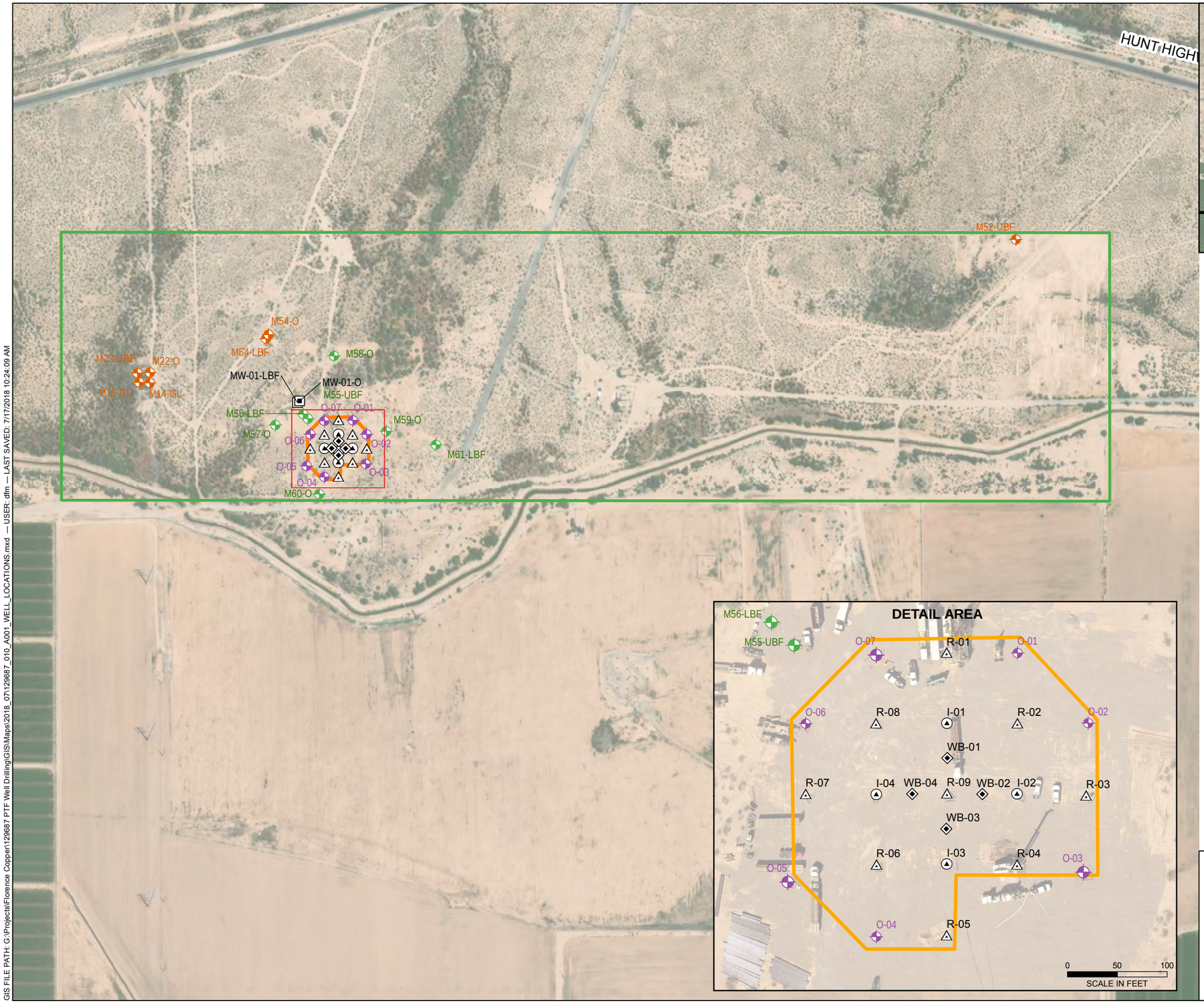
Daniel B. Stephens, Inc., 2014. *Geochemical Evaluation to Forecast Composition of Process Solutions for In-Situ Copper Recovery Pilot Test Facility at Florence Copper, Florence Arizona.* Prepared for Florence Copper. May.

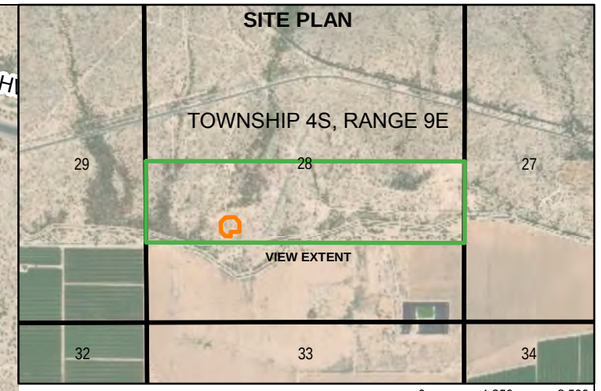
Haley & Aldrich, Inc., 2017. *Bid Specification: Drilling, Installation, and Testing of Class III Westbay Wells, Production Test Facility, Florence, Arizona*. Revised September 2017.

Enclosures:
Figure 1 – Well Locations
Figure 2 – Well WB-02 As-Built Diagram
Figure 3 – Geophysical Data and Lithologic Log
Appendix A – Arizona Department of Water Resources Well Registry Report
Appendix B – Lithologic Log
Appendix C – Chemical Characteristics of Formation Water
Appendix D – Well Completion Documentation
Appendix E – Geophysical Logs
Appendix F – Cement Bond Log Summary
Appendix G –SAPT Documentation
Appendix H – Well Development Field Forms
Appendix I – Well Video Log and Gyroscopic Survey Reports
Appendix J – Downhole Equipment

G:\Projects\Florence Copper\129687 PTF Well Drilling\Deliverables\Well Summary Reports\WB-02\2018-0914_WB-02 Well Install Comp Letter Report_EPA vers_F.docx

FIGURES





LEGEND

- OBSERVATION WELL
- SUPPLEMENTAL MONITORING WELL
- POINT-OF-COMPLIANCE WELL

PTF WELL

- INJECTION
- RECOVERY
- WESTBAY WELL
- OPERATIONAL MONITORING
- PTF WELL FIELD
- STATE LAND LEASE

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI

0 500 1,000
SCALE IN FEET

HALEY ALDRICH

FLORENCE COPPER PROJECT
FLORENCE, ARIZONA

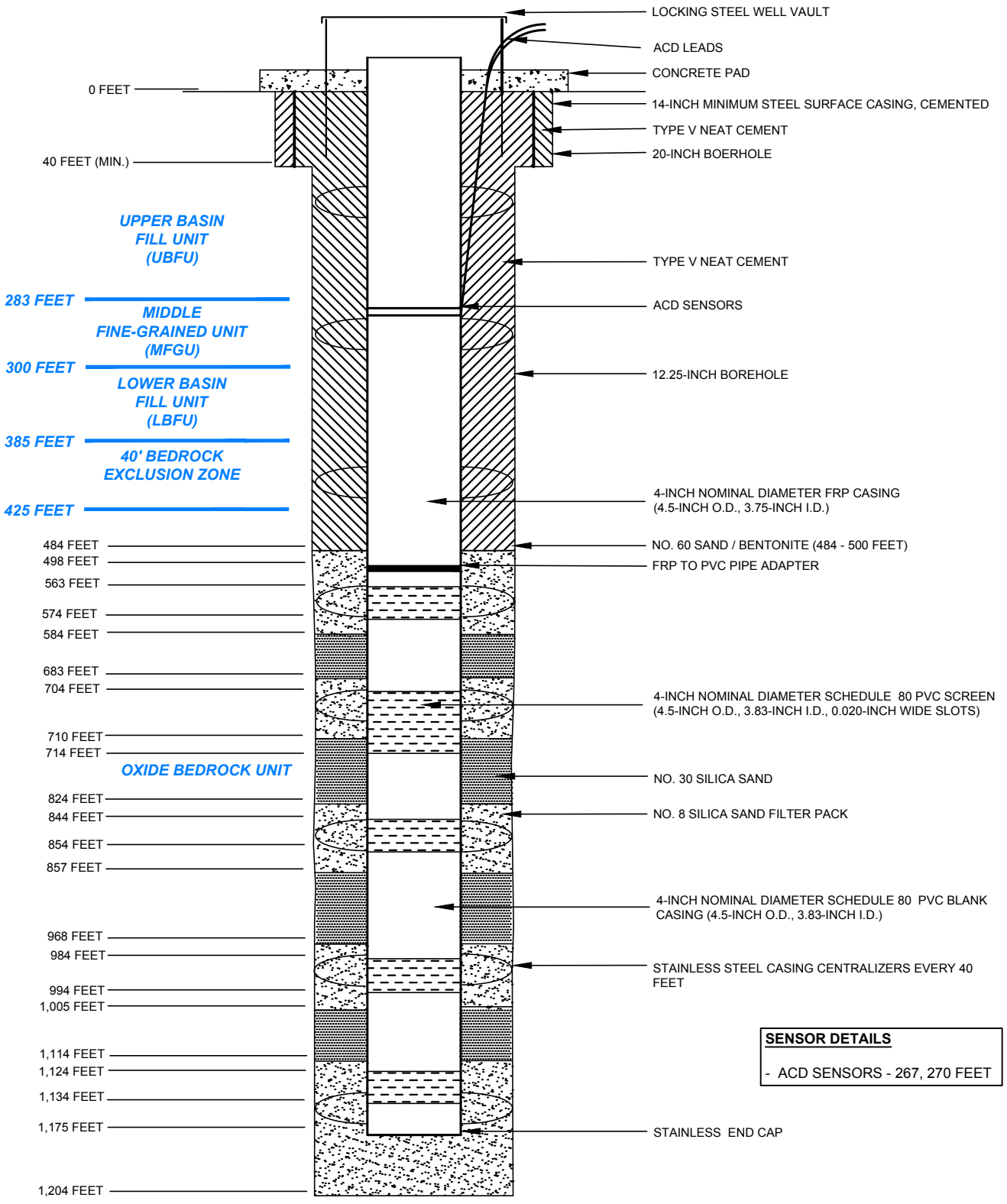
WELL LOCATIONS

FLORENCE COPPER INC.

AUGUST 2018

FIGURE 1

GIS FILE PATH: G:\Projects\Florence Copper\129687 PTF Well Drilling\GIS\Maps\2018_07\129687_010_A001_WELL_LOCATIONS.mxd — USER: dfm — LAST SAVED: 7/17/2018 10:24:09 AM



NOTES

1. WELL REGISTRATION NO.: 55-227227
2. CADASTRAL LOCATION: D(4-9) 28 CAC
3. MEASURING POINT ELEVATION: 1478.75 FEET AMSL
4. I.D. = INSIDE DIAMETER
5. O.D. = OUTSIDE DIAMETER
6. PVC = POLYVINYL CHLORIDE
7. FRP = FIBERGLASS REINFORCED PLASTIC
8. ACD = ANNULAR CONDUCTIVITY DEVICE
9. DOWNHOLE EQUIPMENT INSTALLED BY WESTBAY INSTRUMENTS

HALEY ALDRICH

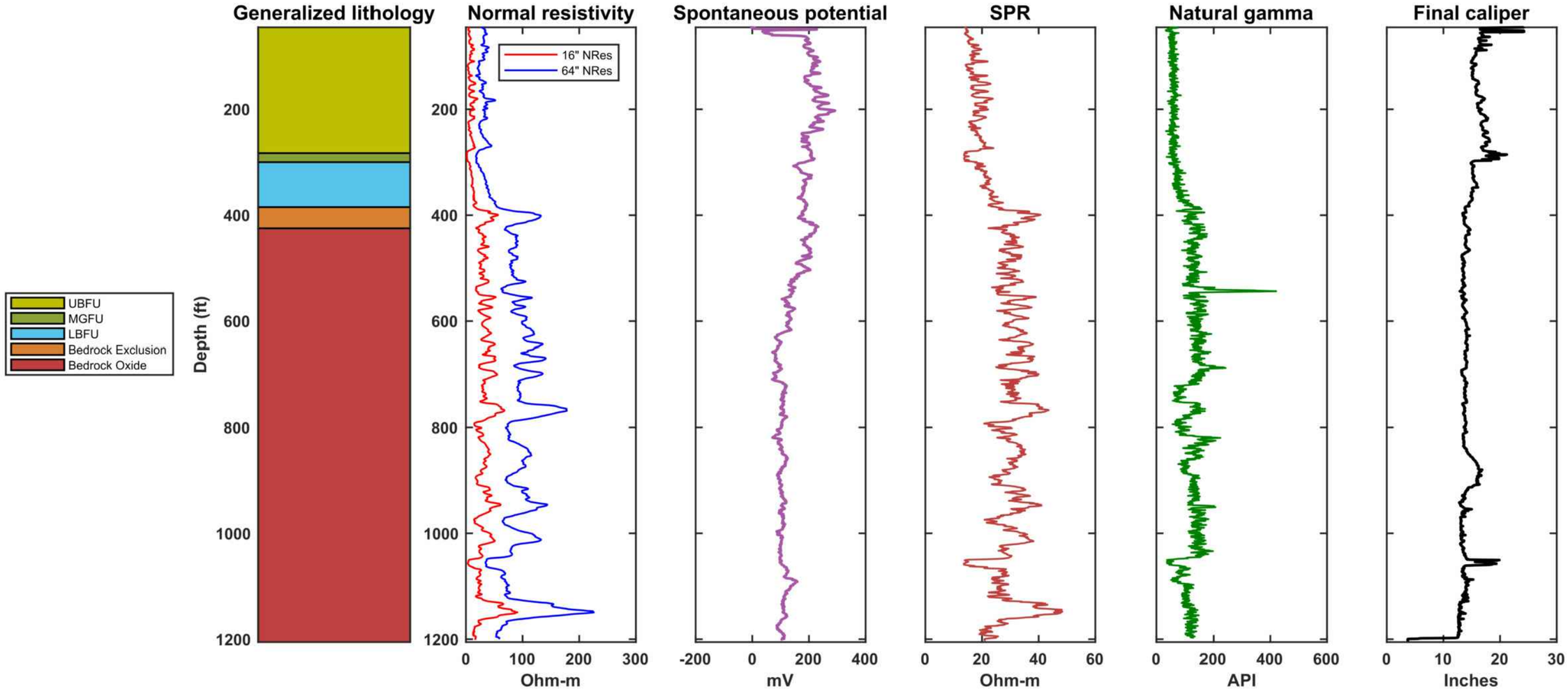
PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

WESTBAY WELL WB-02 AS-BUILT DIAGRAM

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
SEPTEMBER 2018

FIGURE 2



MCELENEY, TERRI Printed: 8/7/2018 9:46 AM Layout: WB02
G:\129687\GLOBAL\CAD\129687-010 GEOPHYICAL DATA2 2018-0802.DWG

HALEY ALDRICH

PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

WESTBAY WELL WB-02 GEOPHYSICAL DATA AND LITHOLOGIC LOG

FLORENCE COPPER

SCALE: AS SHOWN
SEPTEMBER 2018

FIGURE 3

APPENDIX A

Arizona Department of Water Resources Well Registry Report

Arizona Department of Water Resources
Water Management Division
P.O. Box 36020 Phoenix, Arizona 85067-6020
(602) 771-8627 • (602) 771-8690 fax
· www.azwater.gov ·

RECEIVED
AUG 20 2018
ADWR

Well Driller Report and Well Log

THIS REPORT MUST BE FILED WITHIN **30 DAYS** OF COMPLETING THE WELL.

PLEASE PRINT CLEARLY USING BLACK OR BLUE INK.

FILE NUMBER: D (4-9) 28 CAC
WELL REGISTRATION NUMBER: **55 -** 227227
PERMIT NUMBER (IF ISSUED):

SECTION 1. DRILLING AUTHORIZATION

Drilling Firm

Mail To:

NAME	DWR LICENSE NUMBER
Hydro Resources Inc.	816
ADDRESS: 13027 County Rd. 18 Unit C	TELEPHONE NUMBER: (303) 857-7544
CITY / STATE / ZIP: Ft. Lupton, CO 80621	FAX: (303) 857-2826

SECTION 2. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: Florence Copper Inc.

MAILING ADDRESS: 1575 W. Hunt Hwy

CITY / STATE / ZIP CODE: Florence, AZ 85132

CONTACT PERSON NAME AND TITLE: Ian Ream - Sr. Hydrologist

TELEPHONE NUMBER: (520) 374-3984

FAX:

WELL NAME (e.g., MW-1, PZ-3, Lot 25 Well, Smith Well, etc.): WB - 02

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
4S	9E	28	SW ¼	NE ¼	SW ¼

LATITUDE			LONGITUDE		
33 ° Degrees	3 ' Minutes	0.71 "N Seconds	-111 ° Degrees	26 ' Minutes	4.26 "W Seconds

METHOD OF LATITUDE/LONGITUDE (CHECK ONE)
☒ *GPS: Hand-Held ☐ *GPS: Survey-Grade

LAND SURFACE ELEVATION AT WELL: 1492 Feet Above Sea Level

METHOD OF ELEVATION (CHECK ONE)
☒ *GPS: Hand-Held ☐ *GPS: Survey-Grade

*GEOGRAPHIC COORDINATE DATUM (CHECK ONE)
☒ NAD-83 ☐ Other (*please specify*):

COUNTY: PINAL

ASSESSOR'S PARCEL ID NUMBER: BOOK | MAP | PARCEL

SECTION 3. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ALL THAT APPLY
- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☒ Mud Rotary
- ☒ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other *(please specify)*:

Method of Well Development

CHECK ALL THAT APPLY
- ☒ Airlift
- ☐ Bail
- ☐ Surge Block
- ☒ Surge Pump
- ☐ Other *(please specify)*:

Condition of Well

CHECK ONE
- ☒ Capped
- ☐ Pump Installed

Method of Sealing at Reduction Points

CHECK ONE
- ☐ None
- ☐ Packed
- ☐ Swedged
- ☐ Welded
- ☐ Other *(please specify)*:

Construction Dates

DATE WELL CONSTRUCTION STARTED: 03/17/2018

DATE WELL CONSTRUCTION COMPLETED: 05/22/2018

I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and belief.

SIGNATURE OF QUALIFYING PARTY

DATE: 5/22/2018

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227227

SECTION 4. WELL CONSTRUCTION DESIGN (AS BUILT) (attach additional page if needed)

Depth

DEPTH OF BORING		DEPTH OF COMPLETED WELL	
1204	Feet Below Land Surface	1175	Feet Below Land Surface

Water Level Information

STATIC WATER LEVEL		DATE MEASURED	TIME MEASURED	IF FLOWING WELL, METHOD OF FLOW REGULATION
241	Feet Below Land Surface	04/19/2018	1 PM	☐ Valve ☐ Other:

Borehole

DEPTH FROM SURFACE		BOREHOLE DIAMETER (inches)
FROM (feet)	TO (feet)	
0	40	30
40	484	20
484	1204	12.25

Installed Casing

DEPTH FROM SURFACE		OUTER DIAMETER (inches)	MATERIAL TYPE (T)				PERFORATION TYPE (T)						SLOT SIZE IF ANY (inches)
FROM (feet)	TO (feet)		STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	
0	40	24.5	X				X						
0	484	14.5	X				X						
0	498	5.44				FRP	X						
498	563	5.56		X			X						
563	573	5.56		X							X		.020
573	704	5.56		X			X						
704	714	5.56		X							X		.020
714	844	5.56		X			X						
844	854	5.56		X							X		.020

Installed Annular Material

DEPTH FROM SURFACE		ANNULAR MATERIAL TYPE (T)								FILTER PACK		
FROM (feet)	TO (feet)	NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE: GROUT	BENTONITE: CHIPS	BENTONITE: PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	SAND	GRAVEL	SIZE
0	40			X								
0	484			X								
484	500							X				
500	584									X		6-9
584	683							X				
683	710									X		6-9
710	834							X				
834	857									X		6-9
857	968							X				

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227227

SECTION 5. GEOLOGIC LOG OF WELL

DEPTH FROM SURFACE		Description	Check (T) every interval where water was encountered (if known)
FROM (feet)	TO (feet)	Describe material, grain size, color, etc.	
0	283	UPPER BASIN FILL UNIT	
283	300	MIDDLE FINE GRAINED UNIT	
300	385		
385	1204	BEDROCK OXIDE UNIT	

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227227

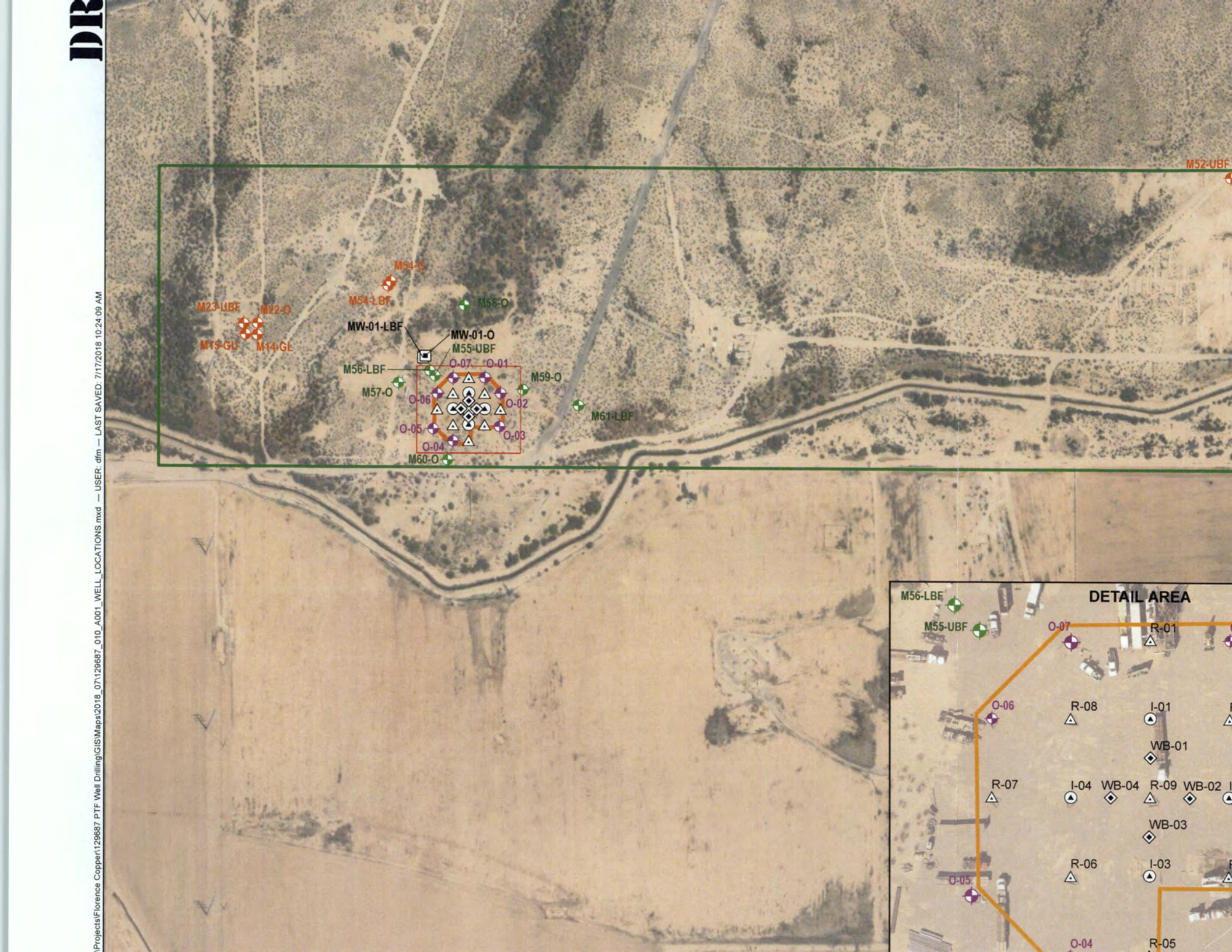
SECTION 6. WELL SITE PLAN

NAME OF WELL OWNER	COUNTY ASSESSOR'S PARCEL ID NUMBER		
Florence Copper Inc.	BOOK	MAP	PARCEL

- Please draw the following: (1) the boundaries of property on which the well was located; (2) the well location; (3) the locations of all septic tank systems and sewer systems on the property or within 100 feet of the well location, even if on neighboring properties; and (4) any permanent structures on the property that may aid in locating the well.
- Please indicate the distance between the well location and any septic tank system or sewer system.

1" = ____ ft

SEE ATTACHED MAP



Run Date: 04/25/2017

AZ DEPARTMENT OF WATER RESOURCES

WELL REGISTRY REPORT - WELLS55

Location D 4.0 9.0 28 C A C

Well Reg.No 55 - 227227

AMA PINAL AMA

Registered Name AZ STATE LAND DEPT.
1616 W. ADAMS ST.
ATTN: LISA ATKINS
PHOENIX AZ 85007

File Type NEW WELLS (INTENTS OR APPLICATIONS)
Application/Issue Date 04/19/2017

Owner OWNER
Driller No. 823
Driller Name NATIONAL EWP, INC.
Driller Phone 480-558-3500
County PINAL
Intended Capacity GPM 0.00

Well Type ENV - MONITOR
SubBasin ELOY
Watershed UPPER GILA RIVER
Registered Water Uses MONITORING
Registered Well Uses MONITOR
Discharge Method NO DISCHARGE METHOD LISTED
Power NO POWER CODE LISTED

Well Depth	0.00	**Case Diam**	0.00	**Tested Cap**	0.00
Pump Cap.	0.00	**Case Depth**	0.00	**CRT**	
Draw Down	0.00	**Water Level**	0.00	**Log**	
		Acres Irrig	0.00	**Finish**	NO CASING CODE LISTED

Contamination Site: NO - NOT IN ANY REMEDIAL ACTION SITE

Tribe: Not in a tribal zone

Comments Well WB-02
AZ State Land Mineral Lease #11-026500

Current Action

4/25/2017 555 DRILLER & OWNER PACKETS MAILED
Action Comment: TNV

Action History

4/25/2017 550 DRILLING AUTHORITY ISSUED
Action Comment: TNV

4/19/2017 155 NOI RECEIVED FOR A NEW NON-PRODUCTION WELL
Action Comment: TNV

ARIZONA DEPARTMENT OF WATER RESOURCES

1110 W. Washington St. Suite 310
Phoenix, Arizona 85007

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILLING OPERATIONS

WELL REGISTRATION NO: **55-227227** WELL OWNER ID: WB-02

AUTHORIZED DRILLER: **NATIONAL EWP, INC.** LICENSE NO: **823**

NOTICE OF INTENTION TO DRILL ENV - MONITOR WELL(S) HAS BEEN FILED WITH THE DEPARTMENT BY:

WELL OWNER: **AZ STATE LAND DEPT. 1616 W. ADAMS ST. ATTN: LISA ATKINS PHOENIX, AZ, 85007**

THE WELL(S) IS/ARE TO BE LOCATED IN THE:

SW 1/4 of the **NE** 1/4 of the **SW** 1/4 Section **28** Township **4.0** **SOUTH** Range **9.0** **EAST**

NO. OF WELLS IN THIS PROJECT: **1**

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE DAY OF **April 19, 2018**

Stella Murillo

GROUNDWATER PERMITTING AND WELLS

THE DRILLER MUST FILE A LOG OF THE WELL WITHIN 30 DAYS OF COMPLETION OF DRILLING.

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

ARIZONA DEPARTMENT of WATER RESOURCES
1110 W. Washington St. Suite 310
Phoenix, AZ 85007
602-771-8500
azwater.gov

April 25, 2017

AZ STATE LAND DEPT.
1616 W. ADAMS ST.
ATTN: LISA ATKINS
PHOENIX, AZ 85007

Registration No. 55- 227227
File Number: D(4-9) 28 CAC

Dear Well Applicant:

Enclosed is a copy of the Notice of Intention to Drill (NOI) a well which you or your driller recently filed with the Department of Water Resources. This letter is to inform you that the Department has approved the NOI and has mailed, or made available for download, a drilling authorization card to your designated well drilling contractor. The driller may not begin drilling until he/she has received the authorization, and must keep it in their possession at the well site during drilling. Although the issuance of this drill card authorizes you to drill the proposed well under state law, the drilling of the well may be subject to restrictions or regulations imposed by other entities.

Well drilling activities must be completed within one year after the date the NOI was filed with the Department. If drilling is not completed within one year, a new NOI must be filed and authorization from this Department received before proceeding with drilling. If the well cannot be successfully completed as initially intended (dry hole, cave in, lost tools, etc.), the well must be properly abandoned and a Well Abandonment Completion Report must be filed by your driller [as required by A.A.C. R12-15-816(F)].

If you change drillers, you must notify the Department of the new driller's identity on a Request to Change Well Information (form 55-71A). Please ensure that the new driller is licensed by the Department to drill the type of well you require. A new driller may not begin drilling until he/she receives a new drilling authorization card from the Department.

If you find it necessary to change the location of the proposed well(s), you may not proceed with drilling until you file an amended NOI with the Department. An amended drilling authorization card will then be issued to the well drilling contractor, which must be in their possession before drilling begins.

Arizona statute [A.R.S. § 45-600] requires registered well owners to file a Pump Installation Completion Report (form 55-56) with the Department within 30 days after the installation of pumping equipment, if authorized. A blank report is enclosed for your convenience. State statute also requires the driller to file a complete and accurate Well Drillers Report and Well Log (form 55-55) within 30 days after completion of drilling. A blank report form was provided to your driller with the drilling authorization card. You should insist and ensure that all of the required reports are accurately completed and timely filed with the Department.

Please be advised that Arizona statute [A.R.S. § 45-593(C)] requires a registered well owner to notify the Department of a change in ownership of the well and/or information pertaining to the physical characteristics of the well in order to keep this well registration file current and accurate. Any change in well information or a request to change well driller must be filed on a Request to Change Well Information form (form 55-71A) that may be downloaded from the ADWR Internet website at www.azwater.gov.

Sincerely,

Groundwater Permitting and Wells Section

Arizona Department of Water Resources
Groundwater Permitting and Wells Section
P.O. Box 36020 Phoenix, Arizona 85067-6020
(602) 771-8500 • (602) 771-8690
· www.azwater.gov ·

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

$150 FEE

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
  - $150 check or money order for the filing fee.
  - Well construction diagram, labeling all specifications listed in Section 6 and Section 7.

Authority for fee: A.R.S. § 45-596 and A.A.C. R12-15-104.

AMA / INA		SB
~~AMA~~ Pinal		PIN 11
RECEIVED DATE		WS
4/19/2017		08 U&R
ISSUED DATE		REMEDIAL ACTION SITE
4/25/2017		000 —

FILE NUMBER: 55-914284 CAC
WELL REGISTRATION NUMBER: 55 - 227227

SECTION 1. REGISTRY INFORMATION

To determine the location of well, please refer to the Well Registry Map (https://gisweb.azwater.gov/WellRegistry/Default.aspx) and/or Google Earth (http://www.earthpoint.us/Townships.aspx)

Well Type (CHECK ONE)
- [X] Monitor
- [ ] Piezometer
- [ ] Vadose Zone
- [ ] Air Sparging
- [ ] Soil Vapor Extraction
- [ ] Other (*please specify*):

Proposed Action (CHECK ONE)
- [X] Drill New Well
- [ ] Deepen
- [ ] Modify

APR 19 2017

WELL REGISTRATION NUMBER (*if Deepening or Modifying*): 55 -

Location of Well

WELL LOCATION ADDRESS (IF ANY)

TOWNSHIP(N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
4.0 S	9.0 E	28	SW ¼	NE ¼	SW ¼

COUNTY ASSESSOR'S PARCEL ID NUMBER

BOOK	MAP	PARCEL
		1001

COUNTY WHERE WELL IS LOCATED: PINAL

SECTION 2. OWNER INFORMATION

Land Owner
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: AZ State Land Dept (Mineral Lease # 11-026500)
MAILING ADDRESS: 1616 W Adams St
CITY / STATE / ZIP CODE: Phoenix, AZ 85007
CONTACT PERSON NAME AND TITLE: Lisa Atkins, State Land Commissioner
TELEPHONE NUMBER: (602) 542-4631
FAX:

Well Owner (*check this box if Land Owner and Well Owner are same* [ ])
FULL NAME OF COMPANY, GOVERNMENT AGENCY, OR INDIVIDUAL: Florence Copper, Inc.
MAILING ADDRESS: 1575 W Hunt Hwy
CITY / STATE / ZIP CODE: Florence, AZ 85132
CONTACT PERSON NAME AND TITLE: Ian Ream, Senior Hydrogeologist
TELEPHONE NUMBER: (520) 374-3984
FAX: (520) 374-3999

SECTION 3. DRILLING AUTHORIZATION

Drilling Firm
NAME: National EWP
DWR LICENSE NUMBER: 823
ROC LICENSE CATEGORY: A-4
TELEPHONE NUMBER: (480) 558-3500
FAX: 480-558-3525
EMAIL ADDRESS: jstephens@nationalewp.com

Consultant (*if applicable*)
CONSULTING FIRM: Haley & Aldrich, Inc.
CONTACT PERSON NAME: Mark Nicholls
TELEPHONE NUMBER: 602-760-2423
FAX: 602-760-2448
EMAIL ADDRESS: mnicholls@haleyaldrich.com

SECTION 4.

Questions	Yes	No	Explanation:
1. Are all annular spaces between the casing(s) and the borehole for the placement of grout at least 2 inches?	[X]	[ ]	2-inch annular spaces are special standards required for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
2. Is the screened or perforated interval of casing greater than 100 feet in length?	[X]	[ ]	100-foot maximum screen intervals are a special standard for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
3. Are you requesting a variance to use thermoplastic casing in lieu of steel casing in the surface seal?	[ ]	[X]	The wells must be constructed in a vault. Pursuant to A.A.C. R12-15-801 (27) a "vault" is defined as a tamper-resistant watertight structure used to complete a well below the land surface.
4. Is there another well name or identification number associated with this well? (e.g., MW-1, PZ2, 06-04, etc.)	[X]	[ ]	If yes, please state WB-02
5. Have construction plans been coordinated with the Arizona Department of Environmental Quality?	[X]	[ ]	If yes, please state agency contact & phone number David Haag, 602-771-4669
6. For monitor wells, is dedicated pump equipment to be installed?	[ ]	[X]	If yes, please state design pump capacity *(Gallons per Minute)*
7. Is this well a new well located in an Active Management Area **AND** intended to pump water for the purpose of remediating groundwater?	[ ]	[X]	You must also file a supplemental form A.R.S. § 45-454(c) & (f) unless the well is a replacement well and the total number of operable wells on the site is not increasing. *(See instructions)*
8. Will the well registration number be stamped on the vault cover or on the upper part of the casing?	[X]	[ ]	If no, where will the registration number be placed?

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

WELL REGISTRATION NUMBER 55 - 227227

SECTION 6. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ONE

- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☒ Mud Rotary
- ☐ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other *(please specify)*:

DATE CONSTRUCTION TO BEGIN: 05/01/2017

Method of Well Development

CHECK ONE

- ☒ Airlift
- ☐ Bail
- ☐ Surge Block
- ☐ Surge Pump
- ☐ Other *(please specify)*:

Grout Emplacement Method

CHECK ONE

- ☒ Tremie Pumped *(Recommended)*
- ☐ Gravity
- ☐ Pressure Grout
- ☐ Other *(please specify)*:

Method of Sealing at Reduction Points

CHECK ONE

- ☒ None
- ☐ Welded
- ☐ Swedged
- ☐ Packed
- ☐ Other *(please specify)*:

Surface or Conductor Casing

CHECK ONE

- ☐ Flush Mount in a vault
- ☒ Extends at least 1' above grade

SECTION 7. PROPOSED WELL CONSTRUCTION PLAN (attach additional page if needed)

Attach a well construction diagram labeling all specifications below.

Borehole

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	BOREHOLE DIAMETER (inches)
0	20	18
20	1210	9.875
PERFORATED: 565-575, 705-715 BLANK: 500-565, 575-705, 715-845		

Casing

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	OUTER DIAMETER (inches)	MATERIAL TYPE (T) STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T) BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	20	14	☒	☐	☐		☒	☐	☐	☐	☐		
0	500	4	☐	☐	☐	FIBERGLASS REINFORCED	☒	☐	☐	☐	☐		
845-855, 985-995, 1125-1135 855-985, 995-1125, 1135-1200		4	☐	☒	☐		☒	☐	☐	☐	X		0.020

Annular Material

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	ANNULAR MATERIAL TYPE (T) NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	BENTONITE CHIPS	BENTONITE PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK SAND	FILTER PACK GRAVEL	FILTER PACK SIZE
0	490	☐	☐	☒	☐	☐	☐	☐		☐	☐	
490	495	☐	☐	☐	☐	☐	☐	☐		☒	☐	No. 30-70
MULTIPLE INTERVALS, SEE DESCRIPTION		☐	☐	X	☐	☐	☐	☐	FILTER PACK: 495-585, 695-725, 835-865, 975-1005,1115-1210 NEAT CEMENT: 585-695, 725-835, 865-975, 1005-1115	X	☐	No. 10-20

IF THIS WELL HAS NESTED CASINGS, SPECIFY NUMBER OF CASING STRINGS:

EXPECTED DEPTH TO WATER *(Feet Below Ground Surface)*: 220

SECTION 8. PERMISSION TO ACCESS

☐ By checking this box, I hereby provide ADWR permission to enter the property for the purpose of taking water level measurements at this well. *(See instructions.)*

SECTION 9. LAND OWNER AND WELL OWNER SIGNATURE

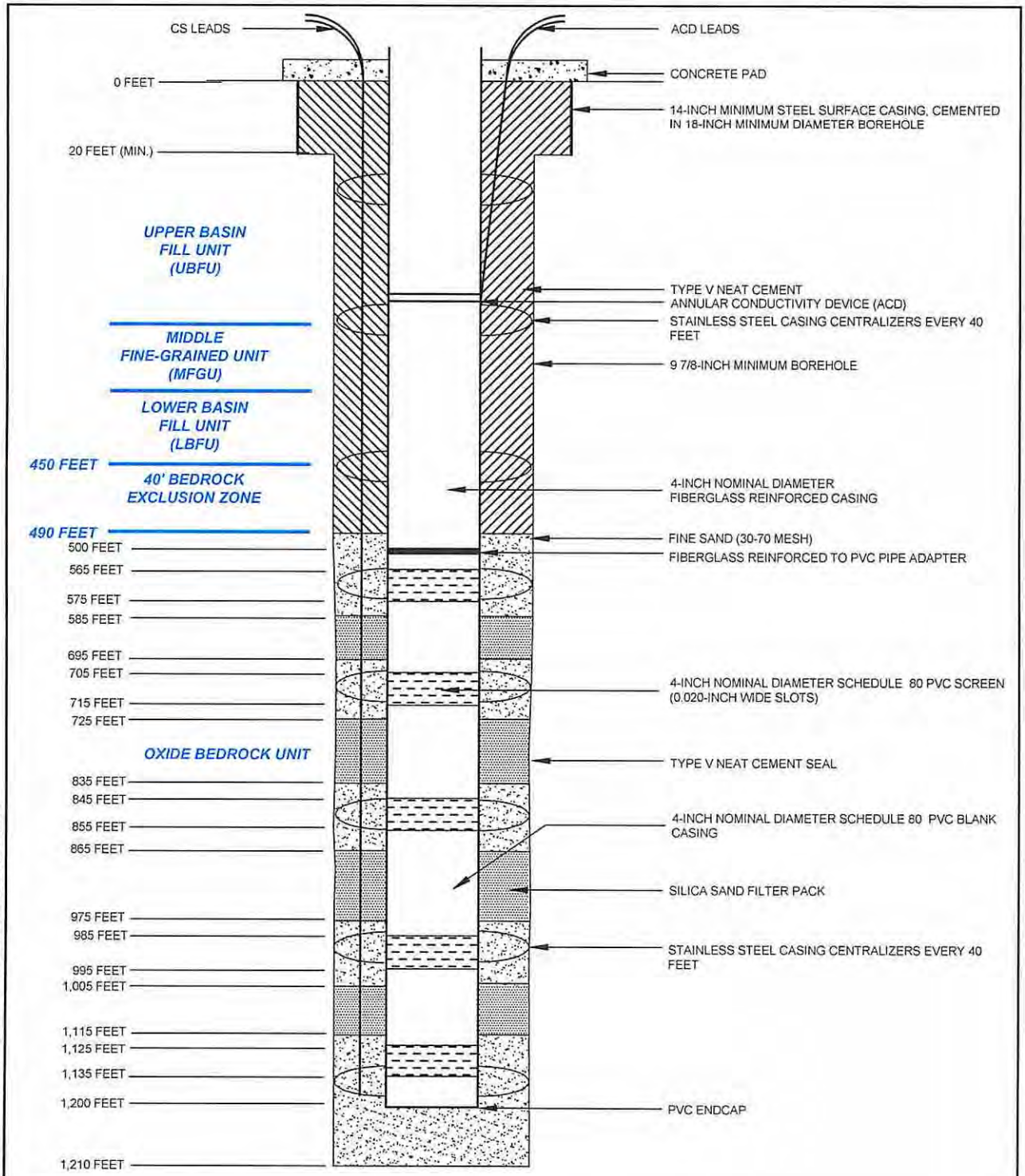
I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and

Land Owner	Well Owner *(if different from Land Owner; See instructions)*
PRINT NAME AND TITLE	PRINT NAME AND TITLE: Ian Ream, Senior Hydrogeologist
SIGNATURE OF LAND OWNER	SIGNATURE OF WELL OWNER
DATE	DATE: 4-17-2017
☐ By checking this box, you agree to allow ADWR to contact you via electronic mail.	☒ By checking this box, you agree to allow ADWR to contact you via electronic mail.
EMAIL ADDRESS	EMAIL ADDRESS: IanReam@florencecopper.com

SECTION 5. Well Construction Diagram

Provide a well construction diagram showing all existing well construction features listed in Section 6 and Section 7.

See attached well diagram.



G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\2014 UIC APP\FIGURES M9A-4.DWG

HALEY ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

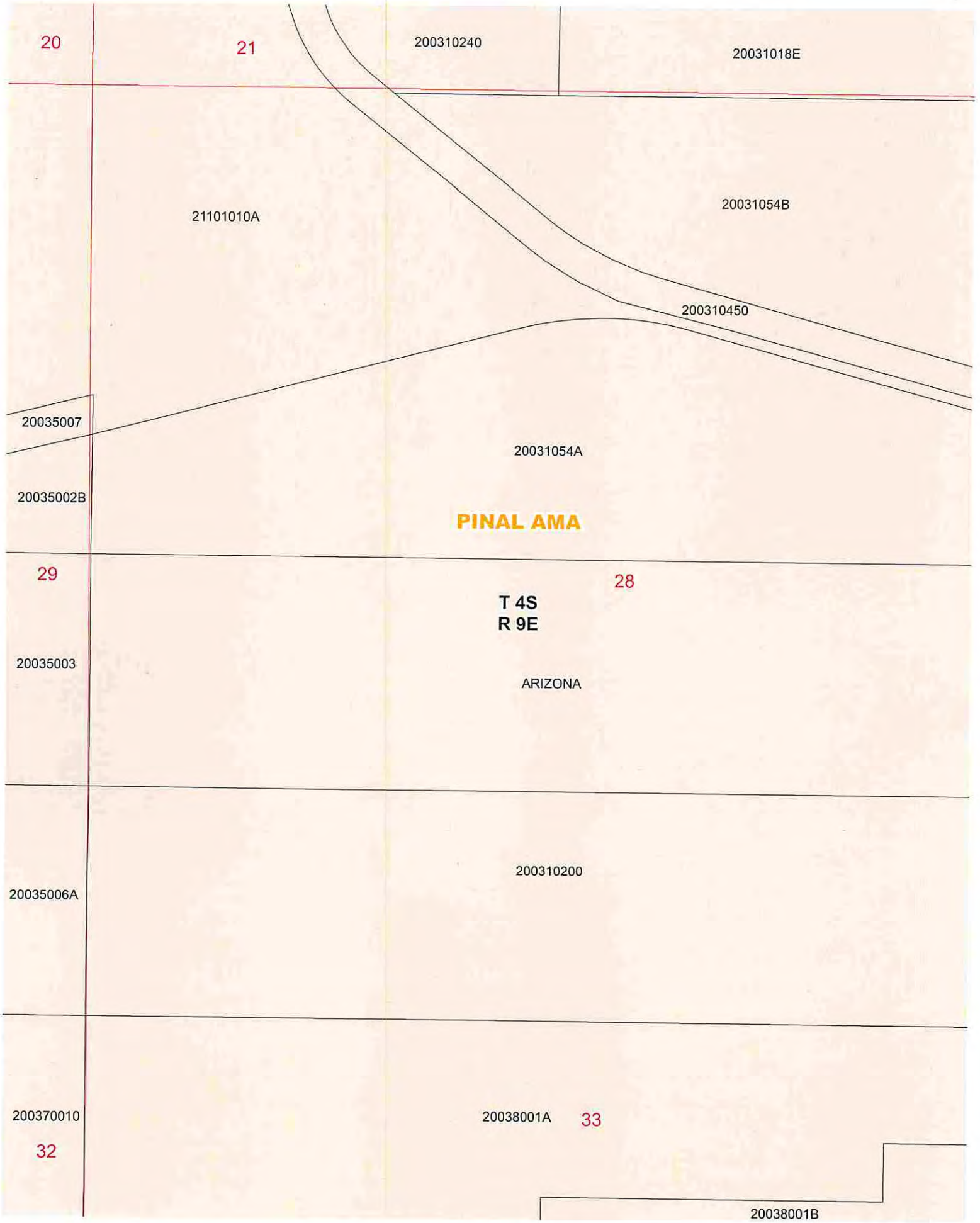
WESTBAY WELL CONSTRUCTION DIAGRAM

FLORENCE COPPER INC.

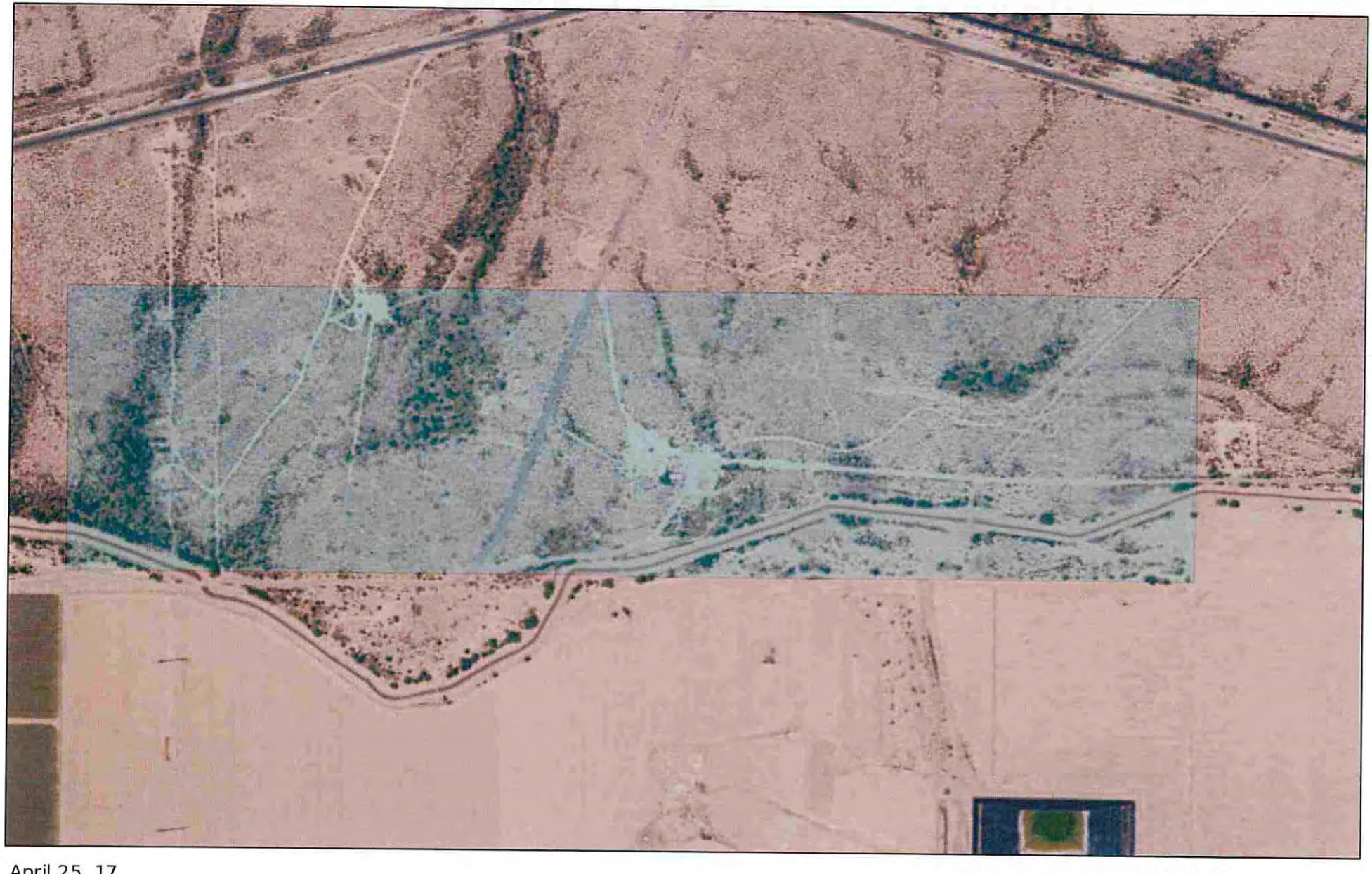
SCALE: NOT TO SCALE

FIGURE 1


20
21
200310240
20031018E
21101010A
20031054B
200310450
20035007
20031054A
20035002B
PINAL AMA
29
28
T 4S
R 9E
20035003
ARIZONA
200310200
20035006A
200370010
20038001A
33
32
20038001B


20
21
200310240
20031018E
21101010A
20031054B
200310450
20035007
20031054A
20035002B
PINAL AMA
29
28
T 4S
R 9E
20035003
ARIZONA
200310200
20035006A
200370010
20038001A
33
32
20038001B

Arizona State Land Department



April 25, 17

1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User

Torren Valdez

From: Robert Harding <RHarding@azland.gov>
Sent: Tuesday, April 25, 2017 9:49 AM
To: Torren Valdez
Subject: ASLD (Landowner) Approval for NOI's - Lease #11-26500

FYI

From: Robert Harding
Sent: Wednesday, March 15, 2017 2:31 PM
To: samurillo@azwater.gov
Cc: Fred Breedlove <FBreedlove@azland.gov>; Joe Dixon <jdixon@azland.gov>; Heide Kocsis <HKocsis@azland.gov>
Subject: ASLD (Landowner) Approval for NOI's - Lease #11-26500

Stella,

As you are aware, Florence Copper is in the presence of registering a number of existing wells on State Trust Lease #11-26500 which were originally installed using single registration numbers to permit multiple monitor well installations. A number of these wells will then be permanently abandoned in accordance with Arizona Department of Water Resources (ADWR) requirements. The lessee, Florence Copper, has discussed the specifics of this registration/abandonment process with the Arizona State Land Department (ASLD), and the Department has no objection to the proposed activities.

Please accept this email as documentation of Landowner's approval for the Notice of Intent (NOI) application filings for well registration and abandonment, currently being submitted to ADWR by Florence Copper on ASLD Lease #11-26500, Section 28, T4S, R9E.

Thank you.
Best regards,

Bob Harding
Hydrologist
Water Rights Section
Arizona State land Department
602.542.2672
rharding@azland.gov

Arizona State Land Department

Torren Valdez

From: Ian Ream <IanReam@florencecopper.com>
Sent: Friday, January 13, 2017 9:06 AM
To: Torren Valdez
Subject: Re: Map of monitor well locations

Hi Torren,

The pumps will be QED micro purge. They typically do a liter or two a minute. Very low flow. Looking for discreet interval samples. The flow rate is based on drawdown. The goal is not to draw down the well much more than a half a foot or 1 foot.

Thanks,

Ian Ream
Senior Hydrogeologist
Florence Copper

On Jan 13, 2017, at 8:56 AM, Torren Valdez <tvaldez@azwater.gov> wrote:

> Ian,
>
> Would you happen to know the pump capacity (gpm) for the low-flow pumps that will be installed on those monitoring wells?
>
> Thank you,
>
> **Torren Valdez**
> Water Planning & Permitting Division
> Arizona Department of Water Resources
> 602.771.8614
>
> <image002.jpg>
>
> ---
>
> **From:** Ian Ream [mailto:IanReam@florencecopper.com]
> **Sent:** Thursday, January 12, 2017 11:13 AM
> **To:** Torren Valdez <tvaldez@azwater.gov>
> **Subject:** Map of monitor well locations
>
> Hi Torren,
>
> Here is a map with the well locations.
>
> Please don't hesitate to contact me if you need anything else or have any questions.
>
> Cheers,
>
> Ian

Ian Ream Senior Hydrogeologist

<image003.jpg>

Florence Copper Inc.
1575 W. Hunt Highway Florence AZ USA 85132
C 520-840-9604 T 520-374-3984 F 520-374-3999
E ianream@florencecopper.com Web florencecopper.com

*Notice Regarding Transmission

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NOTICE

A.R.S. § 41-1030(B), (D), (E) and (F) provide as follows:

B. An agency shall not base a licensing decision in whole or in part on a licensing requirement or condition that is not specifically authorized by statute, rule or state tribal gaming compact. A general grant of authority in statute does not constitute a basis for imposing a licensing requirement or condition unless a rule is made pursuant to that general grant of authority that specifically authorizes the requirement or condition.

D. This section may be enforced in a private civil action and relief may be awarded against the state. The court may award reasonable attorney fees, damages and all fees associated with the license application to a party that prevails in an action against the state for a violation of this section.

E. A state employee may not intentionally or knowingly violate this section. A violation of this section is cause for disciplinary action or dismissal pursuant to the agency's adopted personnel policy.

F. This section does not abrogate the immunity provided by section 12-820.01 or 12-820.02.

ARIZONA DEPARTMENT of WATER RESOURCES
1110 W. Washington St. Suite 310
Engineering and Permits Division
Phoenix, AZ 85007
602-771-8500

NOTICE TO WELL DRILLERS

This is a reminder that a valid drill card be present for the drilling of each and every well constructed on a site.* The problem seems to occur during the construction of a well when an unexpected problem occurs. Either the hole collapses, the hole is dry, a drill bit is lost and can't be recovered, or any number of other situations where the driller feels that he needs to move over and start another well. If you encounter this type of scenario, please be aware drillers do not have the authority to start another well without first obtaining drilling authority for the new well. Please note the following statutes and regulations pertaining to well drilling and construction:

ARIZONA REVISED STATUTE (A.R.S.)

A.R.S. § 45-592.A.

A person may construct, replace or deepen a well in this state only pursuant to this article and section 45-834.01. The drilling of a well may not begin until all requirements of this article and section 45-834.01, as applicable, are met.

***

A.R.S. § 594.A.

The director shall adopt rules establishing construction standards for new wells and replacement wells, the deepening and abandonment of existing wells and the capping of open wells.

***

A.R.S. § 600.A

A well driller shall maintain a complete and accurate log of each well drilled.

ARIZONA ADMINISTRATIVE CODE (A.A.C.)

A.A.C. R12-15-803.A.

A person shall not drill or abandon a well, or cause a well to be drilled or abandoned, in a manner which is not in compliance with A.R.S. Title 45, Chapter 2, Article 10, and the rules adopted thereunder.

***

A.A.C. R12-15-810.A.

A well drilling contractor or single well licensee may commence drilling a well only if the well drilling contractor or licensee has possession of a drilling card at the well site issued by the Director in the name of the well drilling contractor or licensee, authorizing the drilling of the specific well in the specific location.

***

A.A.C. R12-15-816.F.

In the course of drilling a new well, the well may be abandoned without first filing a notice of intent to abandon and without an abandonment card.

*** THIS REQUIREMENT DOES NOT PERTAIN TO THE DRILLING OF MINERAL EXPLORATION, GEOTECHNICAL OR HEAT PUMP BOREHOLES**

Transaction Receipt - Success

Arizona Water Resources
Arizona Water Resources
MID:347501639533
1700 W Washington St
Phoenix , AZ 85012
602-771-8454

04/19/2017 11:49AM
Remittance ID
Arizona041917144729704Chr
Transaction ID:
183294013

KELSEY SHERRARD
500 Main Street
WOODLAND, California 95695
United States
Visa - 3420
Approval Code: 050257

Sale
Amount: $1,650.00

---

multiple
N/A
Cash receipts
0
dgchristiana@azwater.gov

Cardmember acknowledges receipt of goods and/or services in the amount of the total shown hereon and agrees to perform the obligations set forth by the cardmember's agreement with the issuer.

Signature _____

click here to continue.

Printed: 4/19/2017 12:26:46 PM

Arizona Department of Water Resources

1110 West Washington Street, Suite 310
Phoenix AZ 85007

Customer:
KELSEY SHERRARD
NATIONAL EWP
500 MAIN STREET
WOODLAND, CA 95695

Receipt #: 17-50968
Office: MAIN OFFICE
Receipt Date: 04/19/2017
Sale Type: Mail
Cashier: WRDGC

Item No.	Function Code	AOBJ	Description	Ref ID	Qty	Unit Price	Ext Price
8505	122221	4439-6F	MONITOR, PIEZOMETER, AIR SPARGING, SOIL VAPOR EXTR	multiple wells	11	150.00	1,650.00
					RECEIPT TOTAL:		**1,650.00**

Payment type: CREDIT CARD
Amount Paid: $1,650.00
Payment Received Date: 04/19/2017

Authorization 183294013

Notes:

No refund without valid receipt

APPENDIX B

Lithologic Log

LITHOLOGIC LOG

WB-02

Project	Production Test Facility, Florence, Arizona		File No. 129687
Client	Florence Copper, Inc.		Sheet No. 1 of 15
Contractor	Cascade Drilling LLC		Cadastral Location D (4-9) 28 CAC
Drilling Method	Reverse Rotary	Land Surface Elevation 1478.27 feet, amsl	Start 17 March 2018
Borehole Diameter(s)	20/12.25 in.	Datum State Plane NAD 83	Finish 11 April 2018
Rig Make & Model	Challenger 280	Location N 746,131 E 847,730	H&A Rep. C. Giusti

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	COMMENTS
0	1475	SW		**WELL GRADED SAND (0-60 feet)** Primarily fine to medium sand with ~5% fines and ~5% gravel up to 8mm. Sand is subrounded to angular and gravel is subangular. Fines are nonplastic, no toughness, no dry strength, and are brown (7.5YR 4/4). **UBFU**	**Well Registry ID:** 55-227227 **Surface Completion:** Concrete Pad with Locking Vault **Well casing stickup:** 2.00 feet als *COLOR IDENTIFICATION MADE WITH WET SAMPLES USING MUNSELL CHART*
5	1470				
10	1465				
15	1460				
20	1455				
25	1450				
30	1445				
35	1440				
40	1435				**Surface Casing:** 14-inch mild steel; 0 - 20 feet **Well Casing:** Nominal 4-inch diameter Fiberglass Reinforced; 0 - 498 feet
45	1430				
50	1425				
55	1420				
60		CH	60	**FAT CLAY with SAND (60-65 feet)** Primarily fines with ~20% sands and trace gravel up to 6mm. Sand is subrounded to angular and gravel is subrounded. Fines have high plasticity, medium toughness, high dry strength, are brown (7.5YR 5/4), and weak reaction to HCL. **UBFU**	**Unit Intervals:** UBFU: 0 - 283 feet MGFU: 283 - 300 feet LBFU: 300 - 385 feet Oxide Bedrock: 385 - 1204 feet
65	1415	SW-SM	65	**WELL GRADED SAND with SILT (65-80 feet)** Primarily fine to medium sand with ~10% fines and trace gravel up to 7mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines are nonplastic, no toughness, no dry strength, are brown (7.5YR 4/4), and weak reaction to HCL. **UBFU**	
70	1410				
75	1405				

NOTE: Lithologic descrptions, group symbols, and grain-size determinations based on the USCS visual-manual method (Haley & Aldrich OP2001A - Field Practice for Soil Identification and Description).

WB-02

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
75				
	1400			
80		GW	80	**WELL GRADED GRAVEL with SAND (80-85 feet)** Primarily gravel up to 14mm with ~20% sands and ~5% fines. Sand is subrounded to angular and gravel is subrounded to subangular. Fines are nonplastic, no toughness, no dry strength, are brown (7.5YR 4/4). **UBFU**
	1395			
85		SW-SM	85	**WELL GRADED SAND with SILT (85-110 feet)** Primarily fine to medium sand with ~10% fines and ~5% gravel up to 9mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines are nonplastic, no toughness, no dry strength, are brown (7.5YR 5/3), and weak reaction to HCL. **UBFU**
	1390			
90				
	1385			
95				
	1380			
100				
	1375			
105				
	1370			
110		SM	110	**SILTY SAND (110-130 feet)** Primarily Fine sand wih ~30% fines and ~5% gravel up to 6mm. Sand is subrounded to angular and gravel is subrounded. Fines have low plasticity, low toughness, medium dry strength, are brown (7.5YR 5/4), and weak reaction to HCL. **UBFU**
	1365			
115				
	1360			
120				
	1355			
125				
	1350			
130		SW	130	**WELL GRADED SAND (130-165 feet)** Primarily coarse to fine sand with ~5% fines and ~10% gravel up to 12mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines are nonplastic, no toughness, no dry strength are brown (7.5YR 4/4), and weak reaction to HCL. **UBFU**
	1345			
135				
	1340			
140				
	1335			
145				
	1330			
150				
	1325			
155				
	1320			
160				

Seal: Type V neat cement 0 - 484 feet Fine sand/bentonite 484 - 500 feet

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
165	1315	SM	165	**SILTY SAND (165-170 feet)** Primarily fine sand with ~25% fines and ~5% gravel up to 11mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines have low plasticity, low toughness, medium dry strength, are brown (7.5YR 5/4), and weak reaction to HCL. **UBFU**
170	1310	SW	170	**WELL GRADED SAND with GRAVEL (170-185 feet)** Primarily coarse to fine sand with ~5% fines and ~20% gravel up to 16mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines are nonplastic, no toughness, no dry strength, are brown (7.5YR 4/3). Weak reaction to HCL. **UBFU**
175	1305			
180	1300			
185	1295	SM	185	**SILTY SAND (185-205 feet)** Primarily fine to medium sand with ~20% fines and ~5% gravel up to 9mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines have low plasticity, low toughness, medium dry strength, are brown (7.5YR 5/4), and weak reaction to HCL. **UBFU**
190	1290			
195	1285			
200	1280			
205	1275	SW	205	**WELL GRADED SAND (205-215 feet)** Primarily coarse to fine sand with ~5% fines and ~10% gravel up to 14mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines are nonplastic, no toughness, no dry strength, and are brown (7.5YR 4/4). **UBFU**
210	1270			
215	1265	CH	215	**SANDY FAT CLAY (215-230 feet)** Primarily fines with ~40% sands and trace gravel up to 7mm. Sand is subrounded to angular and gravel is subrounded. Fines have high plasticity, low toughness, high dry strength, are brown (7.5YR 5/4), and weak reaction to HCL. **UBFU**
220	1260			
225	1255			
230	1250	SC	230	**CLAYEY SAND (230-245 feet)** Primarily fine to medium sand with ~20% fines and trace gravel up to 8mm. Sand is subrounded to angular and gravel is subrounded. Fines have high plasticity, low toughness, high dry strength, are brown (7.5YR 5/4), and weak reaction to HCL. **UBFU**
235	1245			
240	1240			
245	1235	SW	245	**WELL GRADED SAND with GRAVEL (245-283 feet)** Primarily coarse to fine sand with ~5% fines and ~25% gravel up to 17mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines are nonplastic, no toughness, no dry strength, are brown
	1230			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
250	1225			(7.5YR 4/5), and weak reaction to HCL. **UBFU**	
255	1220				
260	1215				
265	1210				
270	1205				
275	1200				
280	1195	CH	283	**FAT CLAY with SAND (283-300 feet)** Primarily fines with ~20% sands and ~5% gravel up to 8mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines have high plasticity, medium toughness, high dry strength, are brown (7.5YR 5/4), and strong reaction to HCL. **MGFU**	**ACD Sensor Depth:** 286 feet
285	1190				
290	1185				
295	1180				
300	1175	SW	300	**WELL GRADED SAND (300-365 feet)** Primarily medium to coarse and fine sand with ~5% fines and ~10% gravel up to 15mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines are nonplastic, no toughness, no dry strength, and are brown (7.5YR 4/3), and weak reaction to HCL. **LBFU**	
305	1170				
310	1165				
315	1160				
320	1155				
325	1150				
330	1145				
335					

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
340	1140			
345	1135			
350	1130			
355	1125			
360	1120			
365	1115		365	**QUARTZ MONZONITE (365-505 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%.
370	1110			
375	1105			
380	1100			
385	1095			
390	1090			
395	1085			
400	1080			
405	1075		404	
410	1070			
415	1065			
420	1060			
			422	

NOTE: Lithologic descrptions, group symbols, and grain-size determinations based on the USCS visual-manual method (Haley & Aldrich OP2001A - Field Practice for Soil Identification and Description).

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
425	1055			**QUARTZ MONZONITE (365-505 feet)** Continued
430	1050			
435	1045			
440	1040			
445	1035			
450	1030			
455	1025			
460	1020			
465	1015			
470	1010			
475	1005			
480	1000			
485	995			
490	990			
495	985			
500	980			
505	975			**GRANODIORITE (505-515 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%.
	970			

Filter Pack: No. 8 Silica Sand; 500 - 584, 683 - 710, 824 - 857, 968 - 1005, 1114 - 1204 feet
Fine Sand: No. 30 Silica Sand; 584 - 683, 710 - 824, 857 - 968, 1005 - 1114 feet
Thre

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
510	965		515	**QUARTZ MONZONITE (515-720 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%.	
515	960				
520	955				
525	950				
530	945				
535	940				
540	935				
545	930				
550	925				
555	920				
560	915				
565	910				**Well Screen:** Nominal 4-inch diameter, SCH 80 PVC Screen (0.020-inch slots); 563 - 573, 704 - 714, 844 - 854, 984 - 994, 1124 - 1134 feet
570	905				
575	900				
580	895				
585	890				
590	885				
595					

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
			596	**QUARTZ MONZONITE (515-720 feet)** Continued
600	880			
605	875			
610	870			
615	865			
620	860			
625	855			
630	850			
635	845			
640	840			
645	835			
650	830			
655	825			
660	820			
665	815			
670	810			
675	805			
680	800			
			682	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
685	795			**QUARTZ MONZONITE (515-720 feet)** Continued
690	790			
695	785			
700	780			
705	775			
710	770			
715	765			
720	760		720	**GRANODIORITE (720-755 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%.
725	755			
730	750			
735	745			
740	740			
745	735			
750	730			
755	725		755	**QUARTZ MONZONITE (755-805 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%.
760	720			
765	715			
	710		769	

NOTE: Lithologic descrptions, group symbols, and grain-size determinations based on the USCS visual-manual method (Haley & Aldrich OP2001A - Field Practice for Soil Identification and Description).

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
770	705			**QUARTZ MONZONITE (755-805 feet)** Continued
775	700			
780	695			
785	690			
790	685			
795	680			
800	675			
805	670		805	**GRANODIORITE (805-820 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%.
810	665			
815	660			
820	655		820	**QUARTZ MONZONITE (820-1200 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%.
825	650			
830	645			
835	640			
840	635			
845	630			
850	625			
855			856	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
860	620			**QUARTZ MONZONITE (820-1200 feet)** Continued
865	615			
870	610			
875	605			
880	600			
885	595			
890	590			
895	585			
900	580			
905	575			
910	570			
915	565			
920	560			
925	555			
930	550			
935	545			
940	540			
			943	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
945	535			**QUARTZ MONZONITE (820-1200 feet)** Continued
950	530			
955	525			
960	520			
965	515			
970	510			
975	505			
980	500			
985	495			
990	490			
995	485			
1000	480			
1005	475			
1010	470			
1015	465			
1020	460			
1025	455			
	450			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
1030	445		1030	**QUARTZ MONZONITE (820-1200 feet)** Continued
1035	440			
1040	435			
1045	430			
1050	425			
1055	420			
1060	415			
1065	410			
1070	405			
1075	400			
1080	395			
1085	390			
1090	385			
1095	380			
1100	375			
1105	370			
1110	365			
1115				

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
			1117	**QUARTZ MONZONITE (820-1200 feet)** Continued
1120	360			
1125	355			
1130	350			
1135	345			
1140	340			
1145	335			
1150	330			
1155	325			
1160	320			
1165	315			
1170	310			
1175	305			
1180	300			
1185	295			
1190	290			
1195	285			
1200	280			
	275			

HALEY ALDRICH

LITHOLOGIC LOG

WB-02

File No. 129687
Sheet No. 15 of 15

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
1205			1205		**Total Borehole Depth:** Driller = 1205 feet; Geophysical Logging = 1200 feet

NOTE: Lithologic descrptions, group symbols, and grain-size determinations based on the USCS visual-manual method (Haley & Aldrich OP2001A - Field Practice for Soil Identification and Description).

APPENDIX C

Chemical Characteristics of Formation Water

May 23, 2018

Barbara Sylvester
Brown & Caldwell
201 E. Washington Suite 500
Phoenix, AZ 85004

TEL (602) 567-3894
FAX -

Work Order No.: 18D0619
Order Name: Florence Copper

RE: PTF

Dear Barbara Sylvester,

Turner Laboratories, Inc. received 2 sample(s) on 04/25/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Kevin Brim
Project Manager

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

Order: Florence Copper

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18D0619-01	R-09	Ground Water	04/23/2018 1555
18D0619-02	TB	Ground Water	04/25/2018 0000

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

Case Narrative

The 8015D analysis was performed by TestAmerica Laboratories, Inc. in Phoenix, AZ.

The radiochemistry analysis was performed by Radiation Safety Engineering, Inc. in Chandler, AZ.

D5	Minimum Reporting Limit (MRL) is adjusted due to sample dilution; analyte was non-detect in the sample.
H5	This test is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor
PRL	Project Reporting Limit

Turner Laboratories, Inc.

Date: 05/23/2018

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-01

Client Sample ID: R-09
Collection Date/Time: 04/23/2018 1555
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
ICP Dissolved Metals-E 200.7 (4.4)									
Calcium	140		4.0	M3	mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Iron	ND		0.30		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Magnesium	27		3.0		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Potassium	6.8		5.0		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Sodium	170		5.0	M3	mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
ICP/MS Dissolved Metals-E 200.8 (5.4)									
Aluminum	ND		0.0800	D5	mg/L	2	04/27/2018 1440	05/07/2018 1139	MH
Antimony	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Arsenic	0.0016		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Barium	0.071		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Beryllium	ND		0.00050	D5	mg/L	2	04/27/2018 1440	05/07/2018 1139	MH
Cadmium	ND		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Chromium	0.0051		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Cobalt	ND		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Copper	0.011		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Lead	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Manganese	0.0020		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Nickel	0.0033		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Selenium	ND		0.0025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Thallium	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Zinc	ND		0.040		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
CVAA Dissolved Mercury-E 245.1									
Mercury	ND		0.0010		mg/L	1	04/26/2018 0955	04/26/2018 1639	MH
pH-E150.1									
pH (pH Units)	7.8			H5	-	1	04/26/2018 1615	04/26/2018 1616	AP
Temperature (°C)	22			H5	-	1	04/26/2018 1615	04/26/2018 1616	AP
ICP/MS Total Metals-E200.8 (5.4)									
Uranium	0.016		0.00050		mg/L	1	04/27/2018 1230	04/30/2018 1348	MH

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-01

Client Sample ID: R-09
Collection Date/Time: 04/23/2018 1555
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Anions by Ion Chromatography-E300.0 (2.1)									
Chloride	310		25		mg/L	25	04/26/2018 1225	04/26/2018 1415	AP
Fluoride	ND		0.50		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Nitrogen, Nitrate (As N)	8.8		0.50		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Nitrogen, Nitrite (As N)	ND		0.10		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Sulfate	190		130		mg/L	25	04/26/2018 1225	04/26/2018 1415	AP
Cyanide-E335.4									
Cyanide	ND		0.10		mg/L	1	04/26/2018 0845	04/30/2018 1545	AP
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	150		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Phenolphthalein (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Total (As CaCO3)	150		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Specific Conductance-SM2510 B									
Conductivity	1700		0.20		µmhos/cm	2	05/09/2018 1315	05/09/2018 1330	AP
Total Dissolved Solids (Residue, Filterable)-SM2540 C									
Total Dissolved Solids (Residue, Filterable)	1000		20		mg/L	1	04/26/2018 0826	05/01/2018 1600	EJ
Volatile Organic Compounds by GC/MS-SW8260B									
Benzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Carbon disulfide	ND		2.0		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Ethylbenzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Toluene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Xylenes, Total	ND		1.5		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Surr: 4-Bromofluorobenzene	*95*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*
Surr: Toluene-d8	*77*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-02

Client Sample ID: TB
Collection Date/Time: 04/25/2018 0000
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Volatile Organic Compounds by GC/MS-SW8260B									
Benzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Carbon disulfide	ND		2.0		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Ethylbenzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Toluene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Xylenes, Total	ND		1.5		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*
Surr: Dibromofluoromethane	*110*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*
Surr: Toluene-d8	*103*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804269 - E 245.1										
Blank (1804269-BLK1)				Prepared & Analyzed: 04/26/2018						
Mercury	ND	0.0010	mg/L							
LCS (1804269-BS1)				Prepared & Analyzed: 04/26/2018						
Mercury	0.0049	0.0010	mg/L	0.005000		98	85-115			
LCS Dup (1804269-BSD1)				Prepared & Analyzed: 04/26/2018						
Mercury	0.0048	0.0010	mg/L	0.005000		95	85-115	2	20	
Matrix Spike (1804269-MS1)		**Source: 18D0394-01**		Prepared & Analyzed: 04/26/2018						
Mercury	0.0050	0.0010	mg/L	0.005000	0.00020	97	85-115			
Matrix Spike Dup (1804269-MSD1)		**Source: 18D0394-01**		Prepared & Analyzed: 04/26/2018						
Mercury	0.0050	0.0010	mg/L	0.005000	0.00020	96	85-115	1	20	
Batch 1804292 - E200.8 (5.4)										
Blank (1804292-BLK1)				Prepared & Analyzed: 04/30/2018						
Uranium	ND	0.00050	mg/L							
LCS (1804292-BS1)				Prepared & Analyzed: 04/30/2018						
Uranium	0.046	0.00050	mg/L	0.05000		92	85-115			
LCS Dup (1804292-BSD1)				Prepared & Analyzed: 04/30/2018						
Uranium	0.046	0.00050	mg/L	0.05000		92	85-115	0.2	20	
Matrix Spike (1804292-MS1)		**Source: 18D0614-01**		Prepared & Analyzed: 04/30/2018						
Uranium	0.051	0.00050	mg/L	0.05000	0.0015	99	70-130			
Batch 1805051 - E 200.7 (4.4)										
Blank (1805051-BLK1)				Prepared & Analyzed: 05/04/2018						
Calcium	ND	4.0	mg/L							
Iron	ND	0.30	mg/L							
Magnesium	ND	3.0	mg/L							
Potassium	ND	5.0	mg/L							
Sodium	ND	5.0	mg/L							
LCS (1805051-BS1)				Prepared & Analyzed: 05/04/2018						
Calcium	11	4.0	mg/L	10.00		109	85-115			
Iron	1.0	0.30	mg/L	1.000		104	85-115			
Magnesium	10	3.0	mg/L	10.00		105	85-115			
Potassium	10	5.0	mg/L	10.00		105	85-115			
Sodium	10	5.0	mg/L	10.00		105	85-115			
LCS Dup (1805051-BSD1)				Prepared & Analyzed: 05/04/2018						
Calcium	11	4.0	mg/L	10.00		110	85-115	1	20	
Iron	1.0	0.30	mg/L	1.000		105	85-115	0.5	20	
Magnesium	10	3.0	mg/L	10.00		105	85-115	0.06	20	
Potassium	10	5.0	mg/L	10.00		105	85-115	0.05	20	
Sodium	11	5.0	mg/L	10.00		109	85-115	4	20	

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805051 - E 200.7 (4.4)										
Matrix Spike (1805051-MS1)	**Source: 18D0619-01**			Prepared & Analyzed: 05/04/2018						
Calcium	150	4.0	mg/L	10.00	140	59	70-130			M3
Iron	1.1	0.30	mg/L	1.000	0.028	105	70-130			
Magnesium	38	3.0	mg/L	10.00	27	108	70-130			
Potassium	17	5.0	mg/L	10.00	6.8	105	70-130			
Sodium	170	5.0	mg/L	10.00	170	30	70-130			M3
Matrix Spike (1805051-MS2)	**Source: 18E0021-01**			Prepared & Analyzed: 05/04/2018						
Calcium	64	4.0	mg/L	10.00	54	103	70-130			
Iron	1.0	0.30	mg/L	1.000	0.0060	101	70-130			
Magnesium	21	3.0	mg/L	10.00	11	99	70-130			
Potassium	15	5.0	mg/L	10.00	4.7	104	70-130			
Sodium	99	5.0	mg/L	10.00	90	87	70-130			
Batch 1805069 - E 200.8 (5.4)										
Blank (1805069-BLK1)				Prepared & Analyzed: 05/07/2018						
Aluminum	ND	0.0400	mg/L							
Antimony	ND	0.00050	mg/L							
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Beryllium	ND	0.00025	mg/L							
Cadmium	ND	0.00025	mg/L							
Chromium	ND	0.00050	mg/L							
Cobalt	ND	0.00025	mg/L							
Copper	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Manganese	ND	0.00025	mg/L							
Nickel	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Thallium	ND	0.00050	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1805069-BS1)				Prepared & Analyzed: 05/07/2018						
Aluminum	0.104	0.0400	mg/L	0.1000		104	85-115			
Antimony	0.048	0.00050	mg/L	0.05000		96	85-115			
Arsenic	0.050	0.00050	mg/L	0.05000		100	85-115			
Barium	0.050	0.00050	mg/L	0.05000		100	85-115			
Beryllium	0.049	0.00025	mg/L	0.05000		97	85-115			
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115			
Chromium	0.051	0.00050	mg/L	0.05000		102	85-115			
Cobalt	0.051	0.00025	mg/L	0.05000		101	85-115			
Copper	0.051	0.00050	mg/L	0.05000		103	85-115			
Lead	0.049	0.00050	mg/L	0.05000		98	85-115			
Manganese	0.050	0.00025	mg/L	0.05000		101	85-115			
Nickel	0.051	0.00050	mg/L	0.05000		102	85-115			
Selenium	0.051	0.0025	mg/L	0.05000		103	85-115			
Thallium	0.050	0.00050	mg/L	0.05000		101	85-115			
Zinc	0.10	0.040	mg/L	0.1000		101	85-115			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805069 - E 200.8 (5.4)										
LCS Dup (1805069-BSD1)				Prepared & Analyzed: 05/07/2018						
Aluminum	0.115	0.0400	mg/L	0.1000		115	85-115	10	20	
Antimony	0.048	0.00050	mg/L	0.05000		96	85-115	0.7	20	
Arsenic	0.050	0.00050	mg/L	0.05000		101	85-115	0.8	20	
Barium	0.051	0.00050	mg/L	0.05000		102	85-115	1	20	
Beryllium	0.049	0.00025	mg/L	0.05000		97	85-115	0.2	20	
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115	0.2	20	
Chromium	0.051	0.00050	mg/L	0.05000		102	85-115	0.4	20	
Cobalt	0.050	0.00025	mg/L	0.05000		101	85-115	0.5	20	
Copper	0.052	0.00050	mg/L	0.05000		105	85-115	2	20	
Lead	0.049	0.00050	mg/L	0.05000		98	85-115	0.1	20	
Manganese	0.050	0.00025	mg/L	0.05000		101	85-115	0.09	20	
Nickel	0.051	0.00050	mg/L	0.05000		103	85-115	0.8	20	
Selenium	0.052	0.0025	mg/L	0.05000		104	85-115	2	20	
Thallium	0.050	0.00050	mg/L	0.05000		101	85-115	0.06	20	
Zinc	0.10	0.040	mg/L	0.1000		104	85-115	3	20	
Matrix Spike (1805069-MS1)		**Source: 18D0693-01**		Prepared & Analyzed: 05/07/2018						
Aluminum	0.239	0.0400	mg/L	0.1000	0.166	74	70-130			
Antimony	0.045	0.00050	mg/L	0.05000	0.00024	90	70-130			
Arsenic	0.056	0.00050	mg/L	0.05000	0.0035	104	70-130			
Barium	0.16	0.00050	mg/L	0.05000	0.12	94	70-130			
Beryllium	0.045	0.00025	mg/L	0.05000	0.000029	90	70-130			
Cadmium	0.047	0.00025	mg/L	0.05000	ND	94	70-130			
Chromium	0.049	0.00050	mg/L	0.05000	0.00052	98	70-130			
Cobalt	0.048	0.00025	mg/L	0.05000	0.00097	95	70-130			
Copper	0.051	0.00050	mg/L	0.05000	0.0020	98	70-130			
Lead	0.047	0.00050	mg/L	0.05000	0.00016	94	70-130			
Manganese	0.054	0.00025	mg/L	0.05000	0.0075	94	70-130			
Nickel	0.049	0.00050	mg/L	0.05000	0.0018	94	70-130			
Selenium	0.057	0.0025	mg/L	0.05000	ND	114	70-130			
Thallium	0.048	0.00050	mg/L	0.05000	0.000038	96	70-130			
Zinc	0.11	0.040	mg/L	0.1000	ND	109	70-130			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804261 - SM2540 C										
Duplicate (1804261-DUP1)		**Source: 18D0606-01**		Prepared: 04/26/2018 Analyzed: 04/27/2018						
Total Dissolved Solids (Residue, Filterable)	630	20	mg/L		630			0.3	5	
Duplicate (1804261-DUP2)		**Source: 18D0606-02**		Prepared: 04/26/2018 Analyzed: 04/27/2018						
Total Dissolved Solids (Residue, Filterable)	610	20	mg/L		620			0.8	5	
Batch 1804268 - E335.4										
Blank (1804268-BLK1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	ND	0.10	mg/L							
LCS (1804268-BS1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000		101	90-110			
LCS Dup (1804268-BSD1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000		101	90-110	0.1	20	
Matrix Spike (1804268-MS1)		**Source: 18D0602-03**		Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.1	0.10	mg/L	2.000	ND	103	90-110			
Matrix Spike Dup (1804268-MSD1)		**Source: 18D0602-03**		Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000	ND	98	90-110	5	20	
Batch 1804272 - E150.1										
Duplicate (1804272-DUP1)		**Source: 18D0662-02**		Prepared & Analyzed: 04/26/2018						
pH (pH Units)	7.8		-		7.8			0.1	200	H5
Temperature (°C)	21		-		21			2	200	H5
Batch 1805027 - SM2320B										
LCS (1805027-BS1)				Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	240	2.0	mg/L	250.0		96	90-110			
LCS Dup (1805027-BSD1)				Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	240	2.0	mg/L	250.0		96	90-110	0	10	
Matrix Spike (1805027-MS1)		**Source: 18D0606-02**		Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	370	2.0	mg/L	250.0	130	96	85-115			
Matrix Spike Dup (1805027-MSD1)		**Source: 18D0606-02**		Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	370	2.0	mg/L	250.0	130	95	85-115	0.5	10	
Batch 1805103 - SM2510 B										
LCS (1805103-BS1)				Prepared & Analyzed: 05/09/2018						
Conductivity	140	0.10	µmhos/cm	141.2		101	0-200			
LCS Dup (1805103-BSD1)				Prepared & Analyzed: 05/09/2018						
Conductivity	140	0.10	µmhos/cm	141.2		101	0-200	0.7	200	
Duplicate (1805103-DUP1)		**Source: 18E0192-01**		Prepared & Analyzed: 05/09/2018						
Conductivity	4.0	0.10	µmhos/cm		4.0			0	10	

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805074 - SW8260B										
Blank (1805074-BLK1)				Prepared & Analyzed: 05/07/2018						
Benzene	ND	0.50	ug/L							
Carbon disulfide	ND	2.0	ug/L							
Ethylbenzene	ND	0.50	ug/L							
Toluene	ND	0.50	ug/L							
Xylenes, Total	ND	1.5	ug/L							
Surrogate: 4-Bromofluorobenzene	*25.0*		*ug/L*	*25.00*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*26.9*		*ug/L*	*25.00*		*107*	*70-130*			
Surrogate: Toluene-d8	*25.1*		*ug/L*	*25.00*		*100*	*70-130*			
LCS (1805074-BS1)				Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	29		ug/L	25.00		114	70-130			
Benzene	27		ug/L	25.00		109	70-130			
Chlorobenzene	29		ug/L	25.00		115	70-130			
Toluene	25		ug/L	25.00		101	70-130			
Trichloroethene	26		ug/L	25.00		103	70-130			
Surrogate: 4-Bromofluorobenzene	*24.6*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*25.6*		*ug/L*	*25.00*		*102*	*70-130*			
Surrogate: Toluene-d8	*24.8*		*ug/L*	*25.00*		*99*	*70-130*			
LCS Dup (1805074-BSD1)				Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00		110	70-130	4	30	
Benzene	26		ug/L	25.00		104	70-130	5	30	
Chlorobenzene	26		ug/L	25.00		105	70-130	9	30	
Toluene	24		ug/L	25.00		96	70-130	5	30	
Trichloroethene	25		ug/L	25.00		98	70-130	4	30	
Surrogate: 4-Bromofluorobenzene	*24.4*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*26.1*		*ug/L*	*25.00*		*104*	*70-130*			
Surrogate: Toluene-d8	*25.1*		*ug/L*	*25.00*		*100*	*70-130*			
Matrix Spike (1805074-MS1)	**Source: 18D0582-02**			Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00	0.070	109	70-130			
Benzene	26		ug/L	25.00	0.020	104	70-130			
Chlorobenzene	26		ug/L	25.00	0.0	105	70-130			
Toluene	27		ug/L	25.00	3.5	95	70-130			
Trichloroethene	24		ug/L	25.00	0.040	97	70-130			
Surrogate: 4-Bromofluorobenzene	*24.4*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*26.4*		*ug/L*	*25.00*		*106*	*70-130*			
Surrogate: Toluene-d8	*24.9*		*ug/L*	*25.00*		*100*	*70-130*			
Matrix Spike Dup (1805074-MSD1)	**Source: 18D0582-02**			Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00	0.070	108	70-130	0.8	30	
Benzene	25		ug/L	25.00	0.020	101	70-130	2	30	
Chlorobenzene	26		ug/L	25.00	0.0	105	70-130	0.3	30	
Toluene	27		ug/L	25.00	3.5	95	70-130	0.1	30	
Trichloroethene	24		ug/L	25.00	0.040	95	70-130	2	30	
Surrogate: 4-Bromofluorobenzene	*24.7*		*ug/L*	*25.00*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*26.4*		*ug/L*	*25.00*		*106*	*70-130*			
Surrogate: Toluene-d8	*25.3*		*ug/L*	*25.00*		*101*	*70-130*			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804245 - E300.0 (2.1)										
Blank (1804245-BLK1)				Prepared & Analyzed: 04/25/2018						
Chloride	ND	1.0	mg/L							
Fluoride	ND	0.50	mg/L							
Nitrogen, Nitrate (As N)	ND	0.50	mg/L							
Nitrogen, Nitrite (As N)	ND	0.10	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1804245-BS1)				Prepared & Analyzed: 04/25/2018						
Chloride	12	1.0	mg/L	12.50		92	90-110			
Fluoride	2.0	0.50	mg/L	2.000		101	90-110			
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000		95	90-110			
Nitrogen, Nitrite (As N)	2.3	0.10	mg/L	2.500		92	90-110			
Sulfate	12	5.0	mg/L	12.50		96	90-110			
LCS Dup (1804245-BSD1)				Prepared & Analyzed: 04/25/2018						
Chloride	12	1.0	mg/L	12.50		94	90-110	2	10	
Fluoride	2.0	0.50	mg/L	2.000		101	90-110	0.4	10	
Nitrogen, Nitrate (As N)	4.9	0.50	mg/L	5.000		98	90-110	3	10	
Nitrogen, Nitrite (As N)	2.4	0.10	mg/L	2.500		95	90-110	3	10	
Sulfate	12	5.0	mg/L	12.50		98	90-110	3	10	
Matrix Spike (1804245-MS1)		**Source: 18D0613-08**		Prepared & Analyzed: 04/25/2018						
Fluoride	3.7	0.50	mg/L	2.000	1.7	100	80-120			
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000	0.22	89	80-120			
Matrix Spike (1804245-MS2)		**Source: 18D0625-01**		Prepared & Analyzed: 04/26/2018						
Nitrogen, Nitrate (As N)	5.0	0.50	mg/L	5.000	0.46	92	80-120			
Nitrogen, Nitrite (As N)	2.2	0.10	mg/L	2.500	ND	88	80-120			
Matrix Spike (1804245-MS3)		**Source: 18D0614-01RE1**		Prepared & Analyzed: 04/26/2018						
Chloride	17		mg/L	12.50	6.4	88	80-120			
Sulfate	28		mg/L	12.50	18	85	80-120			
Matrix Spike Dup (1804245-MSD1)		**Source: 18D0613-08**		Prepared & Analyzed: 04/25/2018						
Fluoride	3.7	0.50	mg/L	2.000	1.7	100	80-120	0.4	10	
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000	0.22	90	80-120	0.6	10	
Matrix Spike Dup (1804245-MSD2)		**Source: 18D0625-01**		Prepared & Analyzed: 04/26/2018						
Nitrogen, Nitrate (As N)	5.1	0.50	mg/L	5.000	0.46	92	80-120	0.2	10	
Nitrogen, Nitrite (As N)	2.2	0.10	mg/L	2.500	ND	88	80-120	0.4	10	
Matrix Spike Dup (1804245-MSD3)		**Source: 18D0614-01RE1**		Prepared & Analyzed: 04/26/2018						
Chloride	18		mg/L	12.50	6.4	89	80-120	0.6	10	
Sulfate	29		mg/L	12.50	18	86	80-120	0.6	10	

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 18D0619 DATE 4/23/18 PAGE 1 OF 1

PROJECT NAME Florence Copper # _____

CONTACT NAME : Barb Sylvester

COMPANY NAME : Brown and Caldwell

ADDRESS : 2 N Central Ave, Suite 1600

CITY Phoenix STATE AZ ZIP CODE 85004

PHONE 602-567-3894 FAX

SAMPLER'S SIGNATURE

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Diss Metals - list (Field Filtered)	Total Uranium (not Filtered)	Inorganics - list	Cyanide (free)	Organics - list	G.Alpha, (RadSafety sub)	Uranium activity if G. Alpha >12	Ra226, 228, Ra-Tot (RadsSafety)	TPH-D (TestAmerica Sub)
R-09	4-23-18	1555		GW	10	X	X	X	X	X	X	X	X	X
8260 TB	4-23-18	1600		GW	1					X				
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										

1. RELINQUISHED BY:
Signature
Printed Name Caleb Caiosh
Firm HA
Date/Time 4-23-18 1630

2. RECEIVED BY: UPS
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
X Standard (approx10 days)*
___Next day ___2 Day ___5 Day*
___ Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
X I. Routine Report
___ II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
___ III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account X Y ___ N
P.O. # _____
Bill to: Florence Copper

SAMPLE RECEIPT:
Total Containers _____
Temperature 2.2
☑ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY: UPS
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature Joseph Catalano
Printed Name
Firm TURNER LABORATORIES INC.
4/23/18 1006
Date/Time

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis: ☐ Yes ☐ No	Custody Seals ☐	Preservation Confirmation ☒
ADEQ Forms: ☐ Yes ☐ No	Container Intact ☒	Appropriate Head Space ☐
Mail ADEQ Forms: ☐ Yes ☐ No	COC/Labels Agree ☐	Received Within Hold Time ☒

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-101943-1
Client Project/Site: 18D0619

For:
Turner Laboratories, Inc.
2445 North Coyote Drive
Suite 104
Tucson, Arizona 85745

Attn: Kevin Brim

Authorized for release by:
5/16/2018 12:23:25 PM

Ken Baker, Project Manager II
(602)659-7624
ken.baker@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
Q9	Insufficient sample received to meet method QC requirements.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Job ID: 550-101943-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-101943-1

Comments
No additional comments.

Receipt
The sample was received on 4/27/2018 10:50 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

GC Semi VOA
Method(s) 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD) associated with preparation batch 550-145985 and analytical batch 550-146884. Affected samples have been added a Q9 qualifier. 18D0619-01 (550-101943-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 3510C.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-101943-1	18D0619-01	Water	04/23/18 15:55	04/27/18 10:50

Detection Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01

Lab Sample ID: 550-101943-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
ORO (C22-C32)	0.21	Q9	0.20		mg/L	1		8015D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01
Date Collected: 04/23/18 15:55
Date Received: 04/27/18 10:50

Lab Sample ID: 550-101943-1
Matrix: Water

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
ORO (C22-C32)	0.21	Q9	0.20		mg/L		04/30/18 14:16	05/10/18 23:29	1
DRO (C10-C22)	ND	Q9	0.10		mg/L		04/30/18 14:16	05/10/18 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*79*		*10 - 150*	*04/30/18 14:16*	*05/10/18 23:29*	*1*

Surrogate Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OTPH (10-150)							
550-101943-1	18D0619-01	79							
LCS 550-145985/2-A	Lab Control Sample	79							
LCSD 550-145985/3-A	Lab Control Sample Dup	79							
MB 550-145985/1-A	Method Blank	65							

Surrogate Legend

OTPH = o-Terphenyl (Surr)

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 550-145985/1-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 145985

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
ORO (C22-C32)	ND		0.20		mg/L		04/30/18 14:15	05/11/18 11:16	1
DRO (C10-C22)	ND		0.10		mg/L		04/30/18 14:15	05/11/18 11:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*65*		*10 - 150*	*04/30/18 14:15*	*05/11/18 11:16*	*1*

Lab Sample ID: LCS 550-145985/2-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 145985

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
ORO (C22-C32)			1.60	1.59		mg/L		99	69 - 107		
DRO (C10-C22)			0.400	0.450		mg/L		113	42 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*79*		*10 - 150*

Lab Sample ID: LCSD 550-145985/3-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 145985

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ORO (C22-C32)			1.60	1.59		mg/L		100	69 - 107	0	20
DRO (C10-C22)			0.400	0.447		mg/L		112	42 - 133	1	22

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*79*		*10 - 150*

QC Association Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

GC Semi VOA

Prep Batch: 145985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-101943-1	18D0619-01	Total/NA	Water	3510C	
MB 550-145985/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-145985/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-145985/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 146884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-101943-1	18D0619-01	Total/NA	Water	8015D	145985
MB 550-145985/1-A	Method Blank	Total/NA	Water	8015D	145985
LCS 550-145985/2-A	Lab Control Sample	Total/NA	Water	8015D	145985
LCSD 550-145985/3-A	Lab Control Sample Dup	Total/NA	Water	8015D	145985

Lab Chronicle

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01
Date Collected: 04/23/18 15:55
Date Received: 04/27/18 10:50

Lab Sample ID: 550-101943-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			145985	04/30/18 14:16	REM	TAL PHX
Total/NA	Analysis	8015D		1	146884	05/10/18 23:29	TC1	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-18

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Method	Method Description	Protocol	Laboratory
8015D	Diesel Range Organics (DRO) (GC)	SW846	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

SUBCONTRACT ORDER

Turner Laboratories, Inc.

101943

18D0619

SENDING LABORATORY:	RECEIVING LABORATORY:
Turner Laboratories, Inc.	TestAmerica Phoenix
2445 N. Coyote Drive, Ste #104	4625 East Cotton Center Boulevard Suite 189
Tucson, AZ 85745	Phoenix, AZ 85540
Phone: 520.882.5880	Phone :(602) 437-3340
Fax: 520.882.9788	Fax:
Project Manager: Kevin Brim	Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
-01			
Sample ID: 18D0619-01 Drinking Water	**Sampled:04/23/2018 15:55**		
8015D Sub	04/30/2018 15:55		8015D DRO and ORO Paramaters Only
Containers Supplied:			

8015D Sub
o-Terphenyl
C10-C32 (Total)
C22-C32 (Oil Range Organics)
C10-C22 (Diesel Range Organics)
C6-C10 (Gasoline Range Organics)

550-101943 Chain of Custody

3,8°C UPS GR

TA-PHX

Released By	Date	Received By	Date
	4/24/18		4-27-18 1050
Released By	Date	Received By	Date

Login Sample Receipt Checklist

Client: Turner Laboratories, Inc.

Job Number: 550-101943-1

Login Number: 101943
List Number: 1
Creator: Gravlin, Andrea

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

Radiation Safety Engineering, Inc.
3245 N. WASHINGTON ST. • CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Radiochemical Activity in Water (pCi/L)

Turner Laboratories
2445 N. Coyote Drive, Ste. 104
Tucson, AZ 85745

Sampling Date: April 23, 2018
Sample Received: May 01, 2018
Analysis Completed: May 22, 2018

Sample ID	Gross Alpha Activity Method 600/00-02 (pCi/L)	Uranium Activity Method ASTM D6239 (pCi/L)	Adjusted Gross Alpha (pCi/L)	Radium 226 Activity Method GammaRay HPGE (pCi/L)	Radium 228 Activity Method GammaRay HPGE (pCi/L)	Total Radium (pCi/L)
18D0619-01	17.7 ± 0.9	12.9 ± 1.2	4.8 ± 1.5	3.1 ± 0.3	3.1 ± 0.4	6.2 ± 0.5
Date of Analysis	5/2/2018	5/21/2018	5/21/2018	5/4/2018	5/4/2018	5/4/2018

Robert L. Metzger, Ph.D., C.H.P. 5/22/2018
Laboratory License Number AZ0462 Date

Radiation Safety Engineering, Inc.
3245 N. WASHINGTON ST. • CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Isotopic Uranium Analysis

Turner Laboratories
2445 N. Coyote Drive, Ste. 104
Tucson, AZ 85745

Sampling Date: April 23, 2018
Sample Received: May 01, 2018
Uranium Analysis Date: May 21, 2018

Sample No.	^{238}U	^{235}U	^{234}U	Total	
18D0619-01	6.0 ± 0.6	0.280 ± 0.004	6.6 ± 0.6	12.9 ± 1.2	Activity (pCi/L)
	17.9 ± 1.7	0.131 ± 0.002	0.00106 ± 0.00010	18.0 ± 1.7	Content (µg/L)
	Comments:				

Robert L. Metzger, Ph.D., C.H.P. 5/22/2018
Date

Laboratory License Number AZ0462

Arizona Department of Environmental Quality

Drinking Water Radionuclides-Adjusted Gross Alpha, Radium 226 & 228, Uranium Analysis Report

Samples To Be Taken At Entry Point Into Distribution System (EPDS) Only

PWS ID#: AZ04 _____ PWS Name: _____

April 23, 2018 (Sample Date) 15:55 (Sample Time) (24 hour clock) _____ (Owner/Contact Person)

_____ (Owner/Contact Fax Number) _____ (Owner/Contact Phone Number)

Sample Collection Point

☐ EPDS # _____

Compliance Sample Type:

☐ Reduced Monitoring — Date Q1 collected: _____

☐ Quarterly — Date Q2 collected: _____

☐ Composite of four quarterly samples — Date Q3 collected: _____

Date Q4 collected: _____

*****RADIOCHEMICAL ANALYSIS*****

>>>To be filled out by laboratory personnel<<<

*****Combined Uranium must be reported in micrograms per liter*****

Analysis Method	MCL	Reporting Limit	Contaminant Name	Cont. Code	Analyses Run Date	Result		Exceed MCL
	15 pCi/L		Adjusted Gross Alpha	4000	5/21/2018	4.8 ± 1.5		
600/00-02		3 pCi/L	Gross Alpha	4002	5/2/2018	17.7 ± 0.9		
7500 - Rn			Radon	4004				
ASTM D6239	30 µg/L	1 µg/L	Combined Uranium	4006	5/21/2018	18.0 ± 1.7	µg/L	
			Uranium 234	4007	5/21/2018	0.00106 ± 0.00010		
			Uranium 235	4008	5/21/2018	0.131 ± 0.002		
			Uranium 238	4009	5/21/2018	17.9 ± 1.7		
	5 pCi/L	1 pCi/L	Combined Radium (226,228)	4010	5/4/2018	6.2 ± 0.5		X
GammaRay HPGE		1 pCi/L	Radium 226	4020	5/4/2018	3.1 ± 0.3		
GammaRay HPGE		1 pCi/L	Radium 228	4030	5/4/2018	3.1 ± 0.4		

*****LABORATORY INFORMATION*****

>>>To be filled out by laboratory personnel<<<

Specimen Number: RSE60312

Lab ID Number: AZ0462

Lab Name: Radiation Safety Engineering, Inc.

Printed Name and Phone Number of Laboratory Contact: Robert L. Metzger, Ph.D., C.H.P. (480) 897-9459

Comments: 18D0619-01

Authorized Signature: Robt L. Metzger

Date Public Water System Notified: _____

DWAR 6: 11/2007

SUBCONTRACT ORDER

Turner Laboratories, Inc.

18D0619

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Kevin Brim

RECEIVING LABORATORY:

Radiation Safety Engineering, Inc.
3245 N. Washington St.
Chandler, AZ 85225-1121
Phone :(480) 897-9459
Fax: (480) 892-5446
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18D0619-01 Drinking Water Sampled:04/23/2018 15:55			
Radiochemistry, Gross Alpha	10/20/2018 15:55		Analyze Uranium and Adjusted Alpha if G. Alpha is > 12
Radiochemistry, Radium 226/228	05/23/2018 15:55		
Containers Supplied:			

H 60312

Released By	Date	Received By	Date
[signature]	4/30/18 16:00	UPS	4/30/18 16:00
Released By	Date	Received By	Date

APPENDIX D

Well Completion Documentation

PIPE TALLY

Project Name.:	ECI	**Project No.:**	129676-004
Well No.:	WB-07	**Date:**	4-6-18 - 4-7-18
Location:	Florence, AL	**Pipe Talley for:**	WELL INSTALL
Total Depth:	1204	**Geologist:**	G. SNISHE, CHAD PRICE

Type of Connections: ☐ Welded ☐ T+C ☐ Flush Thread ☐ Other

Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type	Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type
1	✓	0.35		SS END CAP					
2	✓	20.04		SCH 80 PVC BL					
3	✓	20.03		"					
4	✓	10.04		SCH 80 PVC OPEN SLOT					
5	✓	20.04		SCH 80 PVC BL					
6	✓	20.04							
7	✓	20.04							
8	✓	20.04							
9	✓	20.02							
10	✓	20.04							
11	✓	10.04	10'						
12	✓	10.04		PERF					
13	✓	20.02							
14	✓	20.00							
15	✓	20.02							
16	✓	20.04							
17	✓	20.04							
18	✓	20.04							
19	✓	10.05							
20	✓	10.05		PERF					
21	✓	20.01							
22	✓	20.04							
23	✓	20.04							
24	✓	20.04							
25	✓	20.04							
26	✓	20.09							
27	✓	10.05							
28	✓	10.05		PERF					
29	✓	20.00							
30	✓	20.02							

SUMMARY OF TALLY

Total Length tallied:	
Length of Bottom Packer Element:	
Bottom Packer Element Interval	
Length of Top Packer Element	
Top Packer Element Interval:	
Perforated Interval:	

Notes:

5.65' = ground to beams
Tremie @ 1198.
6.75' tot stickup @ landing

* @ bottom of pipe centralizer

HALEY ALDRICH

HALEY ALDRICH

MB-02 cont'd

PIPE TALLY

Project Name.:	**Project No.:** 296871-007
Well No.: MB-02	**Date:** 4-6-18 - 4-7-18
Location:	**Pipe Talley for:** Hem Install
Total Depth:	**Geologist:**

Type of Connections: ☐ Welded ☑ T+C ☐ Flush Thread ☐ Other

Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type	Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type
31	✓	20.04							
32	✓	19.98							
33	✓	20.00							
34	✓	20.03							
35	✓	10.05							
36	✓	10.05		PERF					
37	✓	20.01							
38	✓	20.04							
39	✓	20.02							
40	✓	5.03							
A1	✓	0.42		XOVER PVC/FRP					
42	✓	28.74		FRP					
43	✓	28.75							
44	✓	28.73							
45	✓	28.74							
46	✓	28.73							
47	✓	28.73							
48	✓	28.74							
49	✓	28.77							ACP
50	✓	28.76							
51	✓	28.49							
52	✓	28.30							
53	✓	28.32							
54	✓	28.73							
55	✓	28.75							
56	✓	28.74							
57	✓	28.75							
58	✓	28.75							
59	✓	2.20		PUP					
60	✓			COUPLER					

SUMMARY OF TALLY

Total Length tallied:	
Length of Bottom Packer Element:	
Bottom Packer Element Interval	
Length of Top Packer Element	
Top Packer Element Interval:	
Perforated Interval:	

Notes: 61 ✓ PUP
62 ✓ FRP PUP TOP PERMANENT PC
63 STEEL NIPPLE COUPLER
64 STEEL " "

HALEY ALDRICH

HALEY ALDRICH

V1. 11/6/17

Casing Layout

Project Name.:	Florence Copper INC	**Project No.:**	129687-007
Well No.:	WB-2	**Date:**	4.7.18
Location:	Florence AZ	**Layout for:**	Lower
Total Depth:		**Geologist:**	C. Price

Pipe Length		Depth BGS
		783.74
20.04	23	803.78
20.04	22	823.82
20.01	21	843.83
10.05	20	853.88
10.05	19	863.93
20.04	18	883.97
20.04	17	904.01
20.04	16	924.05
20.02	15	944.07
20.00	14	964.07
20.02	13	984.09
10.04	12	994.13
10.04	11	1004.17
20.04	10	1024.21
20.02	9	1044.23
20.04	8	1064.27
20.04	7	1084.31
20.04	6	1104.35
20.04	5	1124.39
10.04	4	1134.43
20.03	3	1154.46
20.04	2	1174.50
0.35	1	1174.85

Pipe Length		Depth BGS
		354.13
28.73	46	382.86
28.74	45	411.60
28.73	44	440.33
28.75	43	469.08
28.74	42	497.82
0.42	41	498.24
5.03	40	503.27
20.02	39	523.29
20.04	38	543.33
20.01	37	563.34
10.05	36	573.39
10.05	35	583.44
20.03	34	603.47
20.00	33	623.47
19.98	32	643.45
20.04	31	663.49
20.02	30	683.51
20.00	29	703.51
10.05	28	713.56
10.05	27	723.61
20.05	26	743.66
20.04	25	763.70
20.04	24	783.74

Pipe Length		Depth BGS
	69	
	68	
	67	
	66	
	65	-6.95
	64	-6.95
	63	-6.95
3.25	62	-3.70
2.00	61	-1.70
9.97	60	8.27
2.12	59	10.39
28.75	58	39.14
28.75	57	67.89
28.74	56	96.63
28.75	55	125.38
28.73	54	154.11
28.28	53	182.39
28.30	52	210.69
28.44	51	239.13
28.76	50	267.89
28.77	49	296.66
28.74	48	325.40
28.73	47	354.13

SENSOR DETAILS

Sensor Type	Sensor ID	Pipe #	Distance from Bottom of Sensor to Top of Pipe	Depth of Sensor (BGS)
ACD	2	49	27.12	269.54
ACD	1	*50*	1.35	266.54

Pipe Number	Type
1	SS End Cap
4,12,20,28,36	4" PVC SCH 80 Screen 0.020
2,3,5-11,13-19,21-27,29-35,37-40	4" PVC SCH 80 Blank
41	PVC SCH 80/SCH 40 Blank
42-60	4" FRP
61	TEMP FRP
62	TEMP Stainless Steel

Notes:

HALEY ALDRICH

ESTIMATED ANNULAR MATERIAL RECORD

Project Name: FCI **Project #.:** 129687-007 **Date:** 4/8/18
Well No.: WB-02 **Geologist:**

ANNULAR VOLUME CALCULATIONS

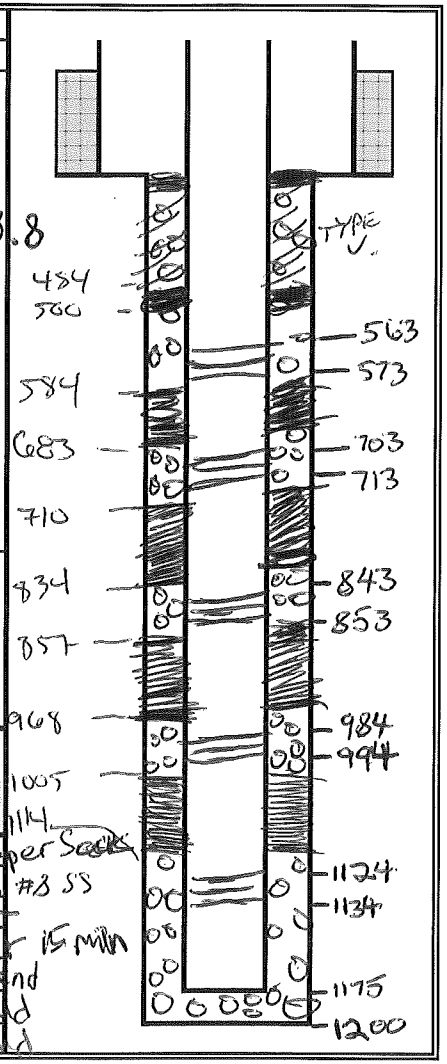
Total Depth of Borehole [T]:	1200	feet	Total Cased Depth:	~~1175~~ 1175	feet
Borehole Diameter [D]:	12.25	inches	Rat Hole Volume [R=(D²) 0.005454*L_r]:	~~29~~	Ft³ 28.8
Screen Length [L_s]:		feet	Rat Hole Length [L_r]	29	feet
Screen Diameter [d_s]:	4.4 ~~4.0~~	inches	Camera Tube Length [L_ct]	NA	feet
Casing Length [L_c]	1175	feet	Camera Tube Diameter [d_ct]	NA	inches
Casing Diameter [d_c]	4.4 ~~4.0~~	inches			

Screen Annular Volume (A_s): (D^2-d_s^2) 0.005454 = ~~0.44~~ 0.71 Ft³/Lin. Ft
Casing Annular Volume (A_c): (D^2-d_c^2) 0.005454 = ~~0.44~~ 0.71 Ft³/Lin. Ft
Casing/Cam.Tube Annular Volume (A_{c+ct}): (D^2-d_c^2-d_{ct}^2) 0.005454 = NA Ft³/Lin. Ft

EQUATIONS

2,700 lbs. Silica Sand = 1 cubic yard = 27 cubic feet
Bentonite Sack = 0.69 ft³
[1] Volume of bag (Ft^3) = bag weight/100
Silica Sand Super Sack = 3000 lbs.
[2] Calculated depth = Previous Calculated depth - (v/A)

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1] (v) (ft³)	Total Vol. of Bags (ft³)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
1	✓	3000	~~30~~ 35	~~30~~ 35	~~1175~~ 1171	—	Tremie to 1151', #8 Super Sacks
2	✓	3000	30	60	1138	1114	~~Tag @~~ Tremie to 1091', #8 SS
~~3~~		~~2400~~	~~24~~		~~1114~~		
—	—	—	—	—	~~1114~~	1114	Swab 1134'-1124' 60 gpm 15 min
3	✓	3000	30	90	1086	—	Tremie to 1059', #30 Sand
4	✓	3000	30	120	1058	—	Tremie @ 1028', #30 Sand
5		3000	30	150	1040	1013	Tremie @ 1001', #30 Sand



S.S. bags
#8 = 111
#30 = 1111

1050-1070 ≈ 18" ≈ 1.7

(4.4)² = 19.36

HALEY ALDRICH

2/3 5.5

ESTIMATED ANNULAR MATERIAL RECORD (Continued)

Project Name: FCI PTF **Project No.:** 129687 **Geologist:** L Price / T. Snow / C. Gyush

Well No.: WB-02 **Date:** 4-8-16

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1](v) (ft^3)	Total Vol. of Bags (ft^3)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments	
6	✓	750	7.5	157.5	1004	1005	1/4 bag - #30 sand, 4th #30 S.S.	tremie @ 1000'
7	✓	1500	15.0	172.5	986	987	1/2 bag #8 gravel, 3rd #8 S.S.	tremie @ 969'
8	✓	1500	15.0	187.5	968	968	~1/2 bag #8 gravel, 3rd #8 S.S.	@ 9381
—	—	—	—	—	—	968	Swab, 964-994. 15 min.	
9	✓	5250	52.5	240.0	~910	903	1 + 3/4 bag #30 sand, 1st + 5th S.S.	tremie @ 938, 908, 878
10	✓	3000	30	270.0	879	879	1 bag #30 sand, 6th SS	tremie @ 857
11	✓	2000	20	290.0	864	857	3/3 bag of #30 sand 7th SS	
12	✓	2250	22.5	312.5	834	824	3/4 bag of #2 sand 4th SS	tremie @ 816'
—	—	—	—	—	824	824	Swab 843-853' for 15 min.	
13	✓	3000	30	342.5	791	—	1 bag of #30 sand 8th SS,	tremie @ 783'
14	✓	3000	30	372.5	758	—	1 bag of #30 sand 9th SS	tremie @ 752'
15	✓	3000	30	402.5	725	684	1/2 bag of #30 sand 6th SS	tremie @ 723', 692', 6
—	—	—	—	—	—	710	Airlift out overfill	
16	✓	2000	20	422.5	686	686	2/3 BAG #8 SAND	tremie @ 692'
17	✓	335	3.35	425.85	682	683	x5 5gal buckets #8 SAND	
						683	SWAB x15MIN 680 - 715	
18	✓	3000	30	455.85	646	NA	1 bag Super Sack #30 SAND	tremie @ 660, 630
19	✓	201	2.01	457.86	643.5	649	x3 5gal buckets #6 SAND	tremie @ 630
20	✓	3000	30	487.86	612	NA	1 Super Sack #30 SAND	tremie @ 598
21	✓	201	2.01	489.87	610	NA	x3 5gal buckets #8 Sand	Tremie lines @ 630, 600, 598
22	✓	201	2.01	491.88	608	607	x3 5gal buckets #6 Sand	
23	✓	1500	15	506.88	584	584	1/2 Super Sack #30 Sand	Tremie @ 577'

Notes:

≈7.3 ft³ 13" borehole = 0.811 ft³/ln ft

0.111

13² = 169

13" = 0.81 ft³/ln ft

7.35 · 6.70

182.25

Tremie

33

18

12.95 - 7.55

111.8

HALEY ALDRICH

ESTIMATED ANNULAR MATERIAL RECORD (Continued)

Project Name: FCI - PTF **Project No.:** 129687 **Geologist:** T. SNOW / C. GIUSTI
Well No.: WB-02 **Date:** 4/11/18

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1](v) (ft^3)	Total Vol. of Bags (ft^3)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
24	✓	3000	30	536.88	551	NA	1 Super Sack #8 Sand Tremie @ 536'
25	✓	3000	30	566.88	518	507	1 Super Sack #8 Sand Tremie @ 507'
26	✓	536	5.36	572.24	500	500	x8 5 gal buckets #8 Sand Tremie @ 473'
—	—	—	—	—	500	500	Swab 563' - 573' for 15 min
27	✓	1160	11	583.24	485	484	x22 bags of #60 Sand
28	✓	NA	584	1167.24	-235	SURFACE	104 BARRELS TYPE V. CEMENT AV Weight = 14.4 lbs/gal

Notes:

HALEY ALDRICH

BASIC ENERGY SERVICES

3451 LeTourneau
Gillette, WY 82718
307-682-5258

Cementing Ticket No. 1719 21392

Date	Customer Order No.		Sect.	Twp.	Range	Truck Called Out	On Location	Job Began	Job Completed
4-12-18						5:50	6:45 a.m.	7:30 a.m.	8:45

Owner	Contractor	Charge To
Florance Copper Mine	Hydro Resources	Hydro West

Mailing Address	City	State

Well No. & Form	Place	County	State
WB-02	copper mine	Pinal	AZ

Depth of Well	Depth of Job	Casing (New / Used)	Size / Weight	Size of Hole / Amt. and Kind of Cement	Cement Left in casing by / Request Necessity
1204	440		Size 4.5 / Weight	12.25 / 2/5	0 feet

Kind of Job: West Bay Production Well

Drillpipe / Tubing 2 7/8 (Rotary / Cable) Truck No. 28983

Price Reference No.
Price of Job 1210
Second Stage
Pump Truck Mileage 3825
P.U. Mileage 765
Other Charges
Total Charges 5,800.00

Remarks
safety meeting held
rig up to tubing with hose and valve
pump 5 bbls to clear tubing
pump and mix 435 sks type 2/5 cement
displace .5 bbl thru mixer
rig down from tubing
wash up in cellar
good cement to surface
THANK YOU

Cementer Bryan Hammond Lead Yield 1.38 Lead Wt. 14.6 Lead Water 6.8 SV 104

Helper Daniel Johnson Tail Yield Tail Wt. Lead Water SV

District Gillette State Wy

The above job was done under supervision of the owner, operator, or his agent whose signature appears below.

Rob Hacker

Agent of contractor or operator

Sales Ticket for Materials Only

QUANTITY SACKS	BRAND AND TYPE	PRICE	TOTAL
16	Crew subsistance	500	8,000.00
10	Transportaton of cement	150	1,500.00
			0.00
			0.00
			0.00
	P.O. # 152614		0.00
	Expected used=20 yrds=391 sks		0.00
	used=22.2 yds=435 sks		0.00
			0.00
			0.00
			0.00
			0.00
			0.00
Plugs			0.00

Equipment #	HRS				
28983	1.5	435	Handling & Dumping	2.44	1,061.40
84127	1		Mileage		0.00
			Sub Total		16,361.40
			Discount		
			Sales Tax		
Signature of helper			Total		

APPENDIX E

Geophysical Logs

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	WB-02
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: E-LOG

MORE: NAT. GAMMA

LOCATION

SEC TWP RGE

OTHER SERVICES
3-ARM CALIPER
TEMPERATURE
FLUID RESISTIVITY
SONIC
DEVIATION

PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL	G.L.

DATE	4-7-18	TYPE FLUID IN HOLE	MUD
RUN No	1 & 2	MUD WEIGHT	N/A
TYPE LOG	E-LOG - NAT. GAMMA	VISCOSITY	N/A
DEPTH-DRILLER	1205 FT.	LEVEL	FULL
DEPTH-LOGGER	1200 FT.	MAX. REC. TEMP.	28.26 DEG. C
BTM LOGGED INTERVAL	1200 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	GEOVISTA E-LOG SN 4035
WITNESSED BY	GENO - H&A	LOG TIME:ON SITE/OFF SITE	12:00 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

.

Tool Summary:

Date	4-7-18	**Date**	4-7-18	**Date**	4-7-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60MM SONIC
Tool SN	5543	**Tool SN**	4035	**Tool SN**	5050
From	SURFACE	**From**	SURFACE	**From**	SURFACE
To	1200 FT.	**To**	1200 FT.	**To**	1200 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	4-6-18	**Operation Check**	4-6-18	**Operation Check**	4-6-18
Calibration Check	4-6-18	**Calibration Check**	4-6-18	**Calibration Check**	N/A
Time Logged	12:10 A.M.	**Time Logged**	1:10 A.M.	**Time Logged**	1:45 A.M.

Date	4-7-18	**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6
Tool Model	QL DEVIATION	**Tool Model**		**Tool Model**	
Tool SN	142201	**Tool SN**		**Tool SN**	
From	SURFACE	**From**		**From**	
To	1200 FT.	**To**		**To**	
Recorded By	A. OLSON	**Recorded By**		**Recorded By**	
Truck No	900	**Truck No**		**Truck No**	
Operation Check	4-6-18	**Operation Check**		**Operation Check**	
Calibration Check	N/A	**Calibration Check**		**Calibration Check**	
Time Logged	2:30 A.M.	**Time Logged**		**Time Logged**	

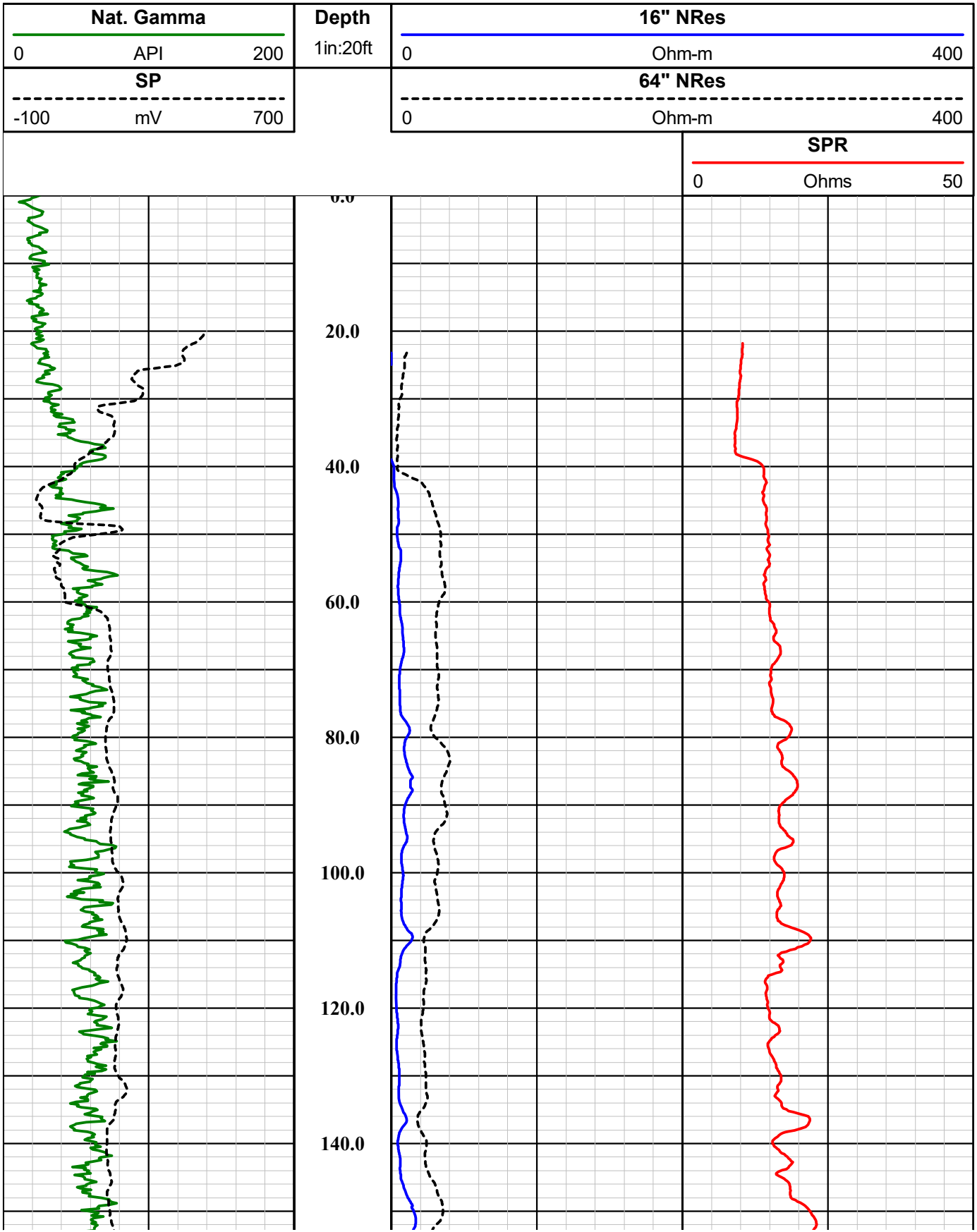
Additional Comments:

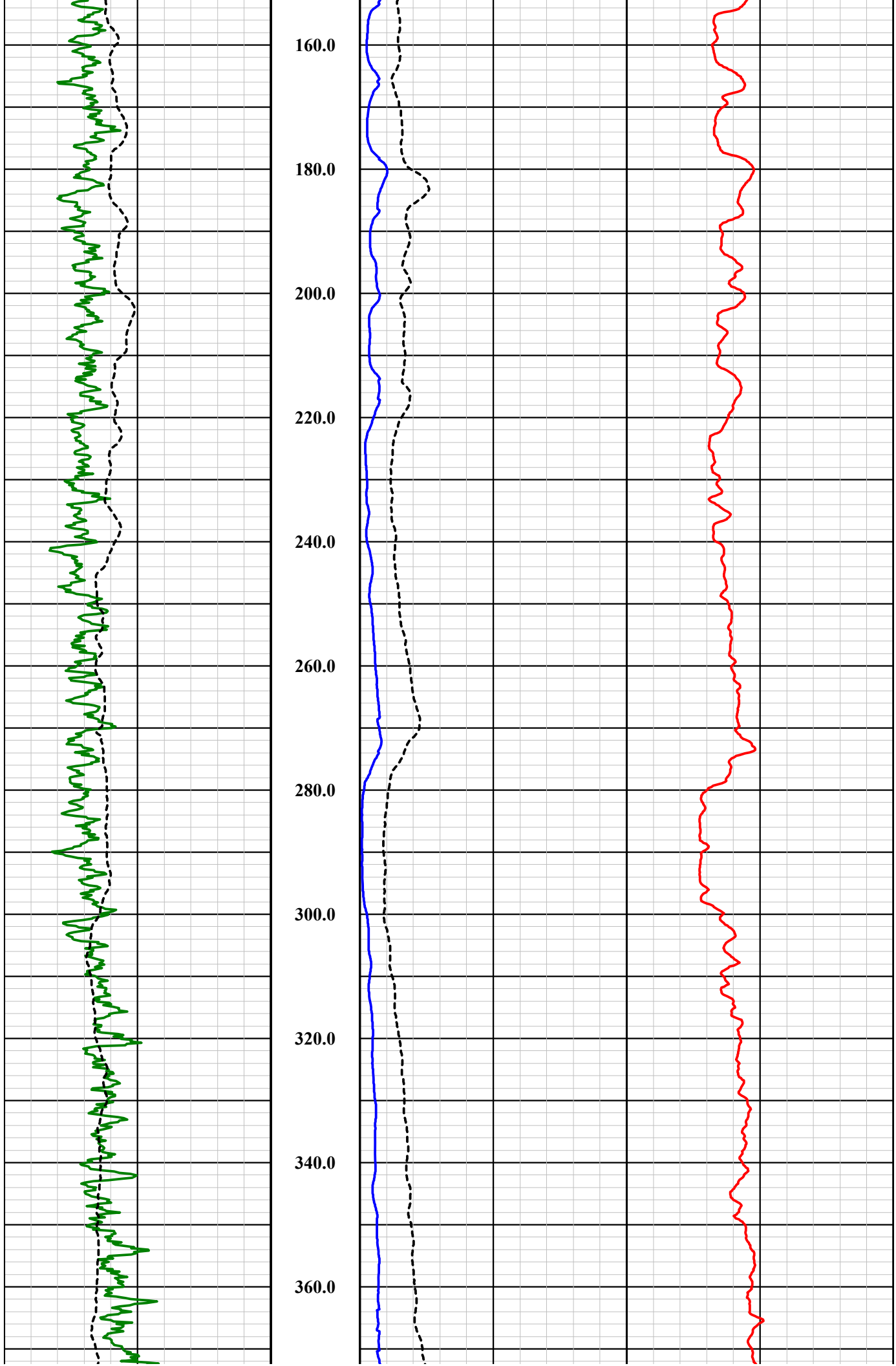
Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

Disclaimer:

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretations or recommendations and shall not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our employees or agents. These interpretations are also subject to our general terms and conditions set out in our current Service Invoice.

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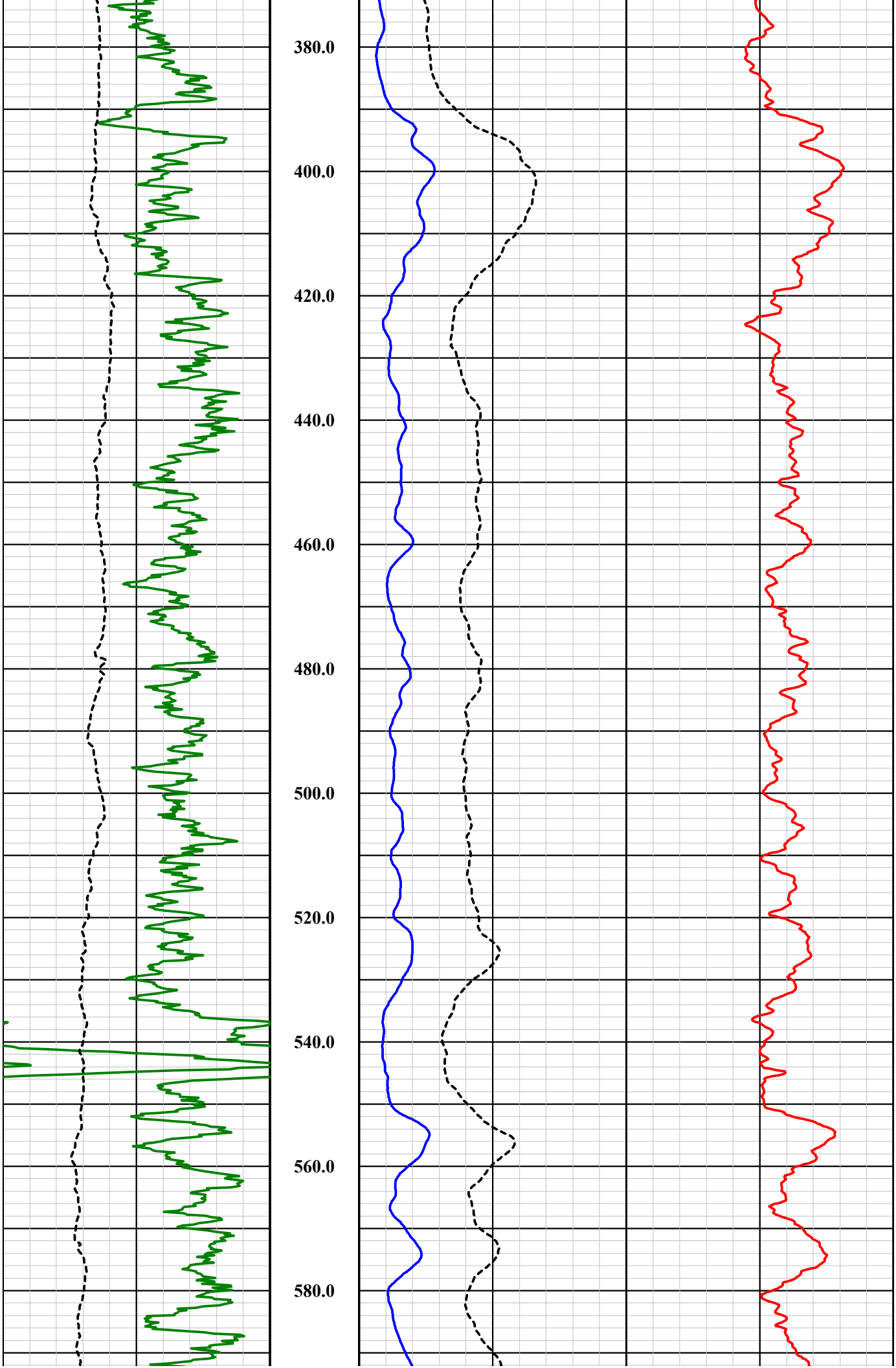
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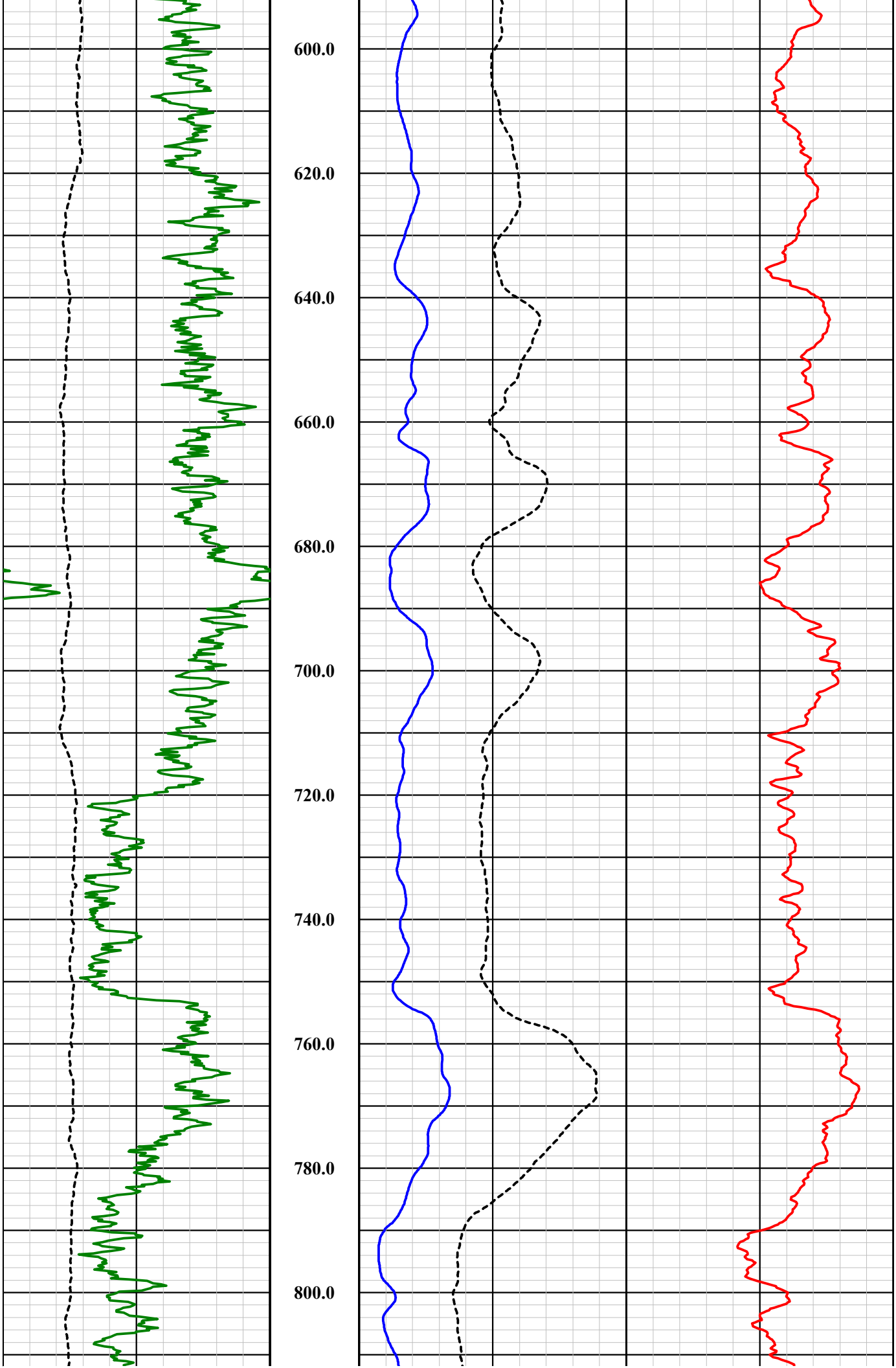
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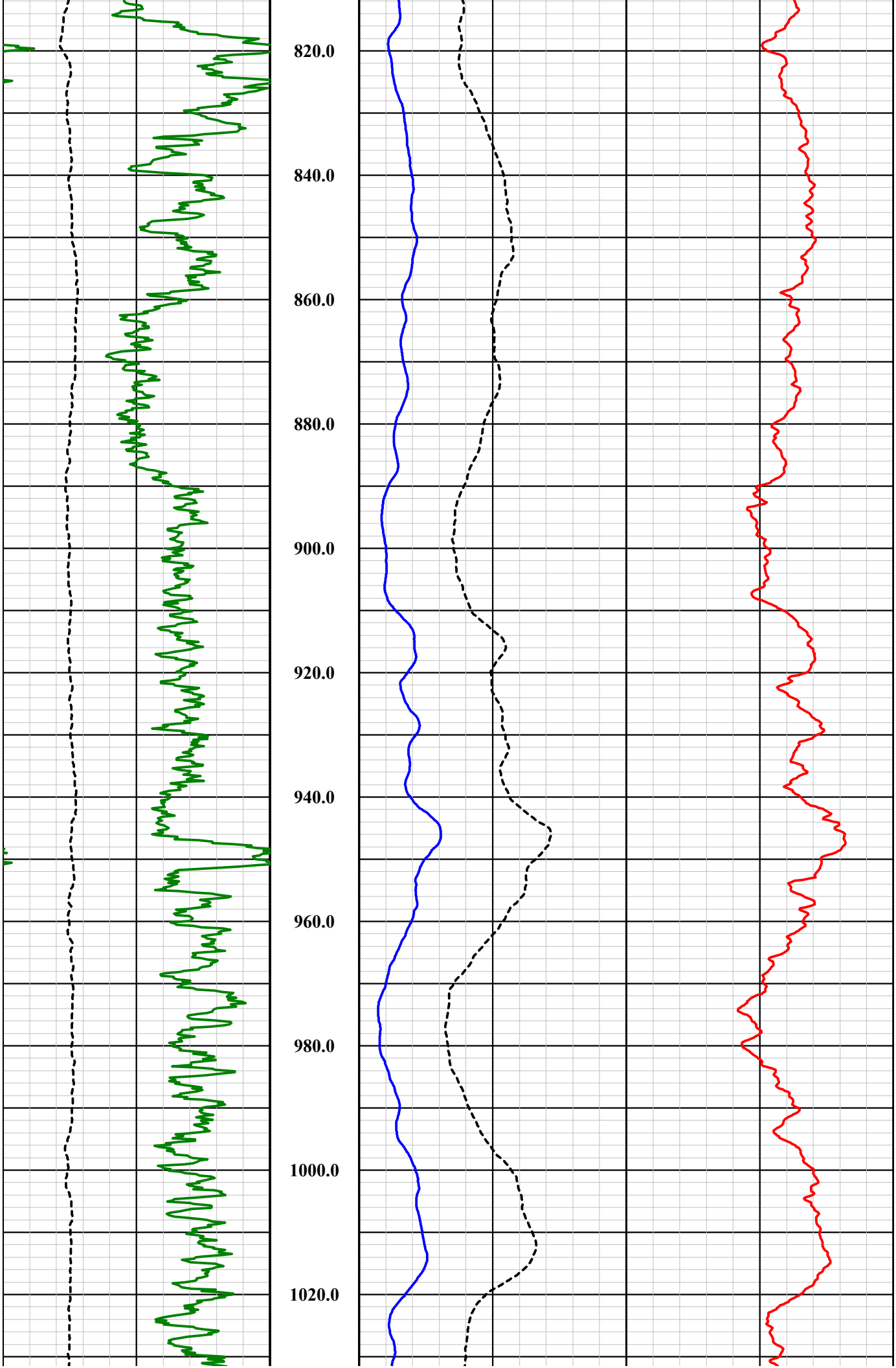
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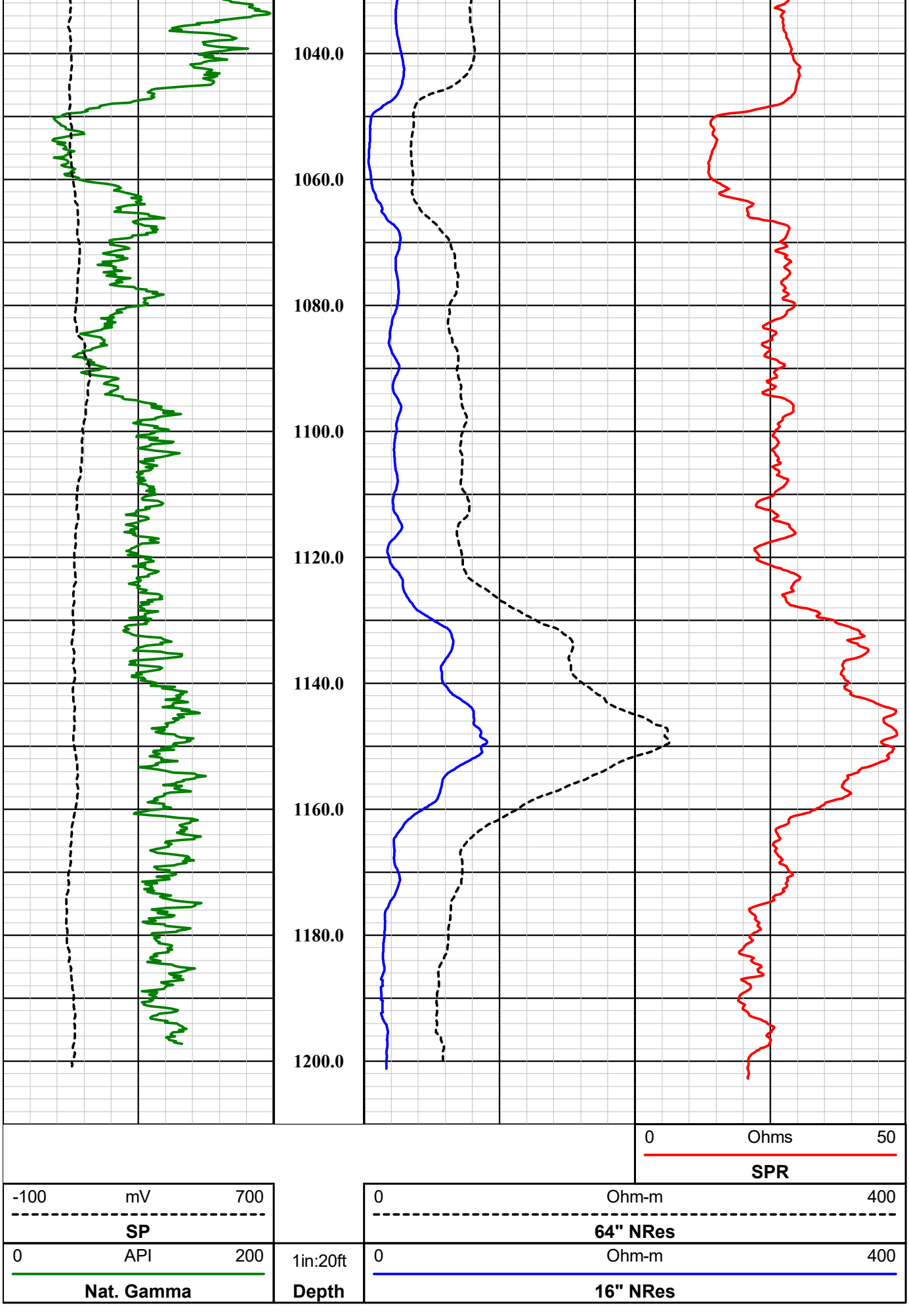


GeoVista E-Log Tool

Probe Top = Depth Ref.

Tool SN: 4035 & 4790

Bridle connects to wireline cablehead: Wireline armor is the B Electrode.

Four Conductor Probe Top

Bridle Electrode (N Electrode)

64" Normal Resistivity Electrode/Spontaneous Potential Electrode (M Electrode)

Probe Length = 2.3 m or 7.55 ft
Bridle Length = 10.0 m or 32.81 ft

Probe Weight = 7.0 kg or 15.4 lbs

Can only be collected in fluid

Isolation Bridle - Not shown in diagram but is necessary for operation

Electrode Measuring Points (from bottom of probe)
- Spontaneous Potential (SP): 0.65 m or 2.13 ft
- 16" Normal Resistivity (16" NRes): 0.50 m or 1.64 ft
- 64" Normal Resistivity (64" NRes): 1.10 m or 3.61 ft
- Single Point Resistance (SPR): 0.25 m or 0.82 ft

Temperature Rating: 80 Deg C (176 Deg F)
Presure Rating: 200 bar (2900 psi)

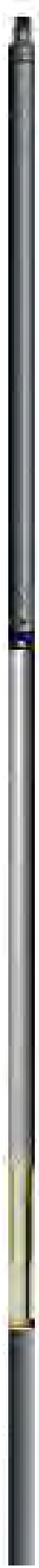
16" Normal Resistivity Electrode (M Electrode)

Current Electrode/Single Point Resistance (A Electrode)

1.65" or 42 mm Diameter

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	WB-02
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final E-Log Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	WB-02
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: GAMMA - CALIPER
MORE: TEMP. / FLUID RES.

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
SONIC
DEVIATION

PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL	G.L.

DATE	4-7-18	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	GAMMA-CALIPER-TFR	VISCOSITY	N/A
DEPTH-DRILLER	1205 FT.	LEVEL	FULL
DEPTH-LOGGER	1200 FT.	MAX. REC. TEMP.	28.26 DEG. C
BTM LOGGED INTERVAL	1200 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	MSI COMBO TOOL SN 5543
WITNESSED BY	GENO - H&A	LOG TIME:ON SITE/OFF SITE	12:00 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

.

Tool Summary:

Date	4-7-18	**Date**	4-7-18	**Date**	4-7-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60MM SONIC
Tool SN	5543	**Tool SN**	4035	**Tool SN**	5050
From	SURFACE	**From**	SURFACE	**From**	SURFACE
To	1200 FT.	**To**	1200 FT.	**To**	1200 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	4-6-18	**Operation Check**	4-6-18	**Operation Check**	4-6-18
Calibration Check	4-6-18	**Calibration Check**	4-6-18	**Calibration Check**	N/A
Time Logged	12:10 A.M.	**Time Logged**	1:10 A.M.	**Time Logged**	1:45 A.M.

Date	4-7-18	**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6
Tool Model	QL DEVIATION	**Tool Model**		**Tool Model**	
Tool SN	142201	**Tool SN**		**Tool SN**	
From	SURFACE	**From**		**From**	
To	1200 FT.	**To**		**To**	
Recorded By	A. OLSON	**Recorded By**		**Recorded By**	
Truck No	900	**Truck No**		**Truck No**	
Operation Check	4-6-18	**Operation Check**		**Operation Check**	
Calibration Check	N/A	**Calibration Check**		**Calibration Check**	
Time Logged	2:30 A.M.	**Time Logged**		**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

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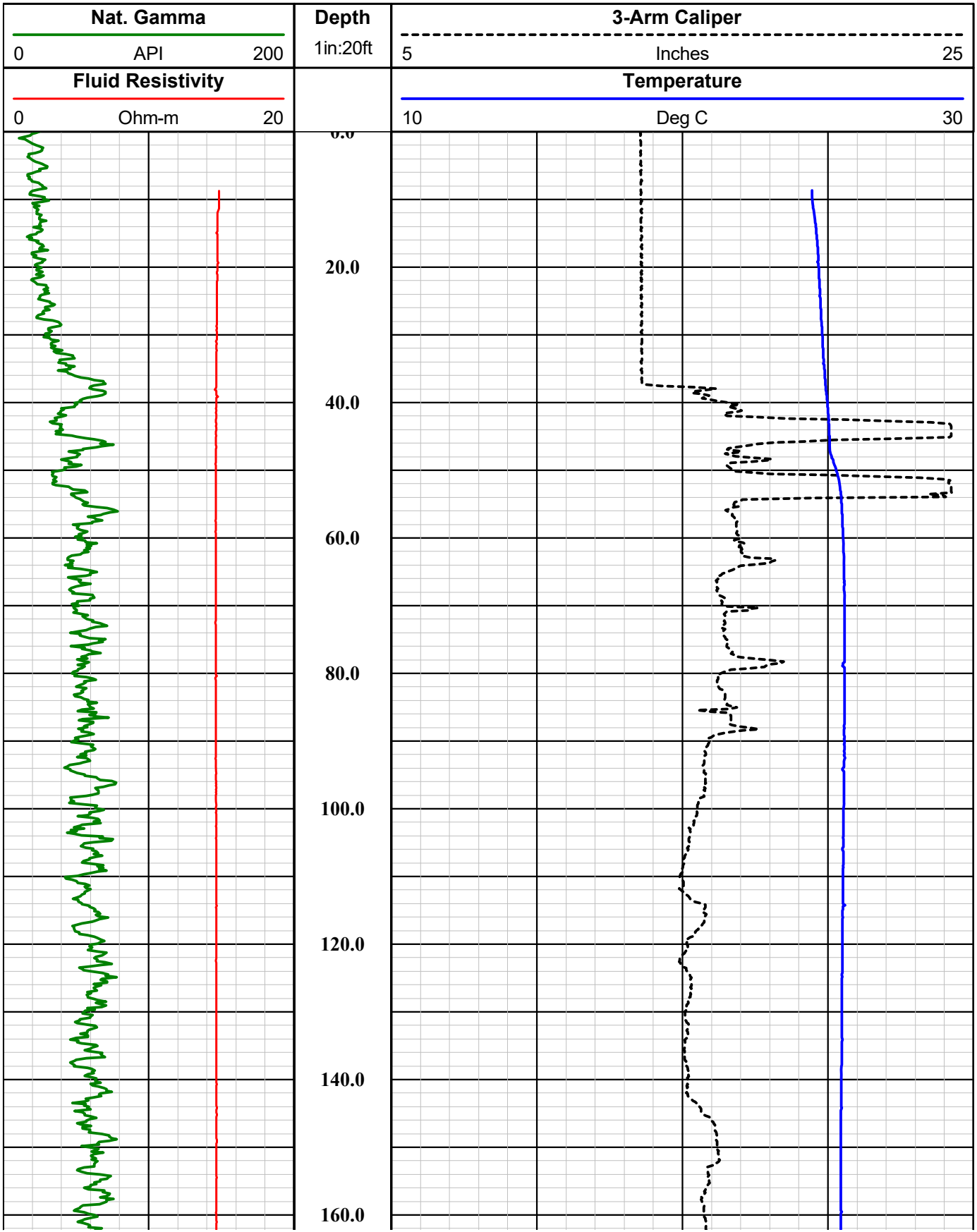

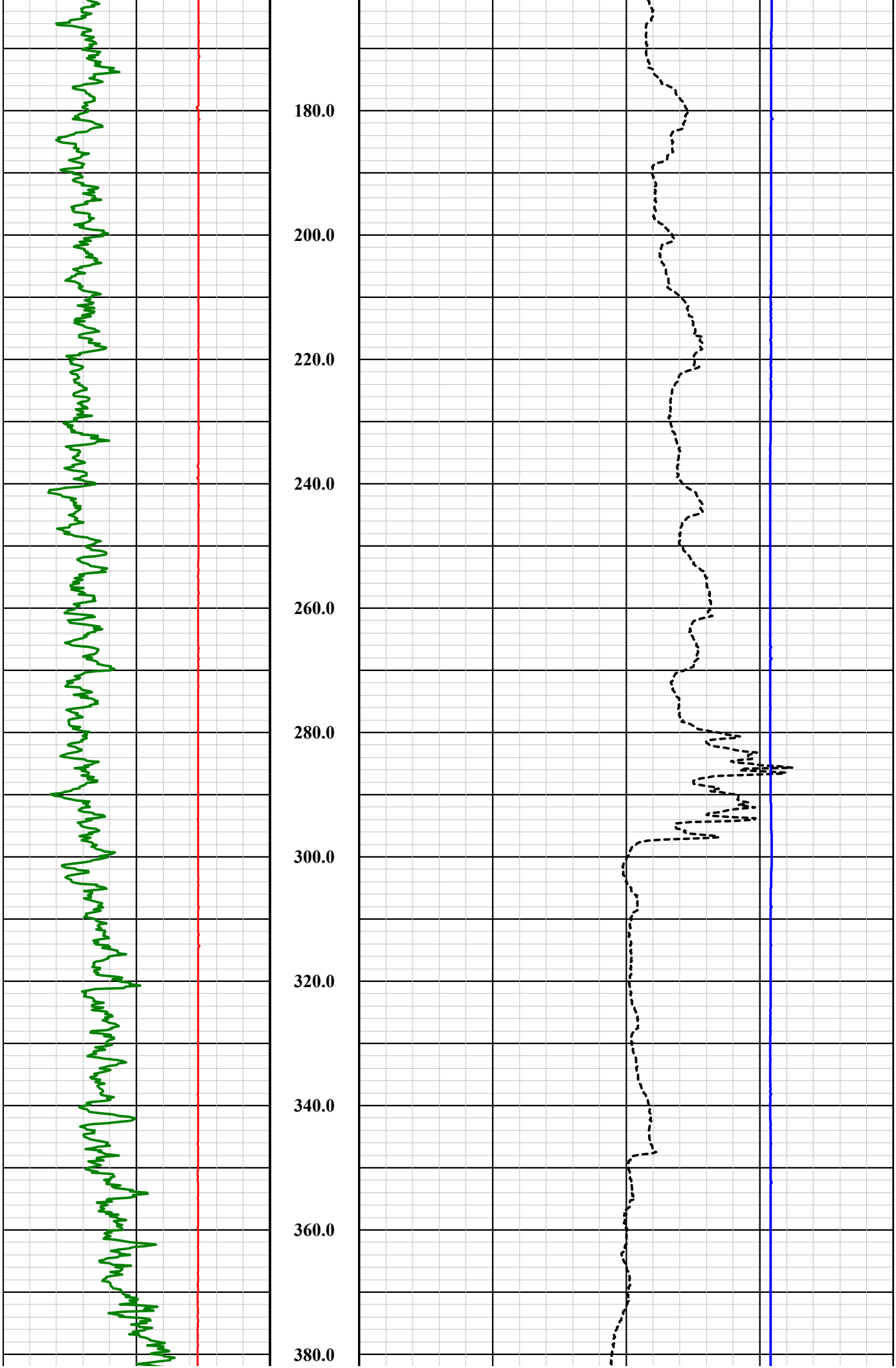
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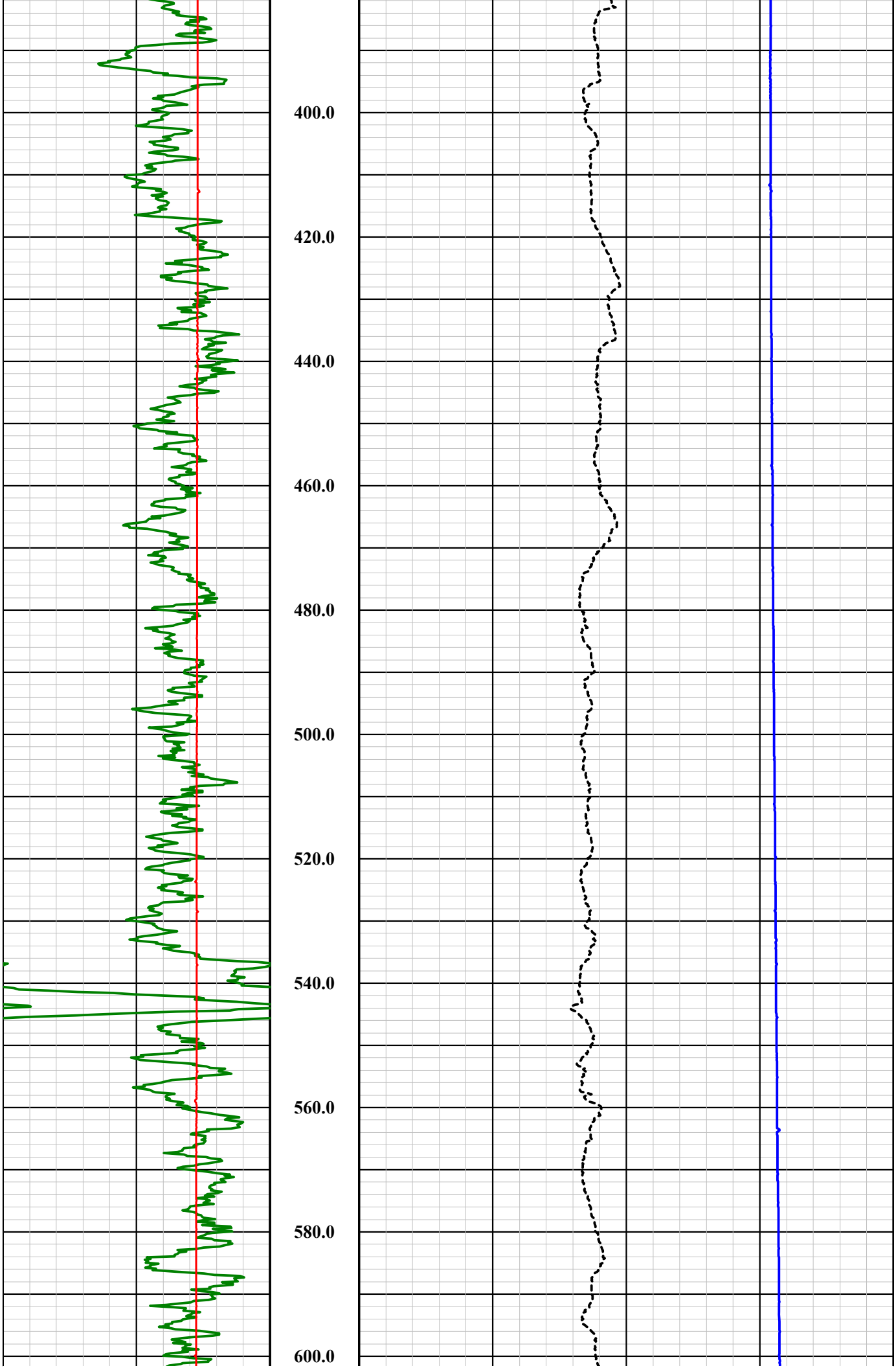
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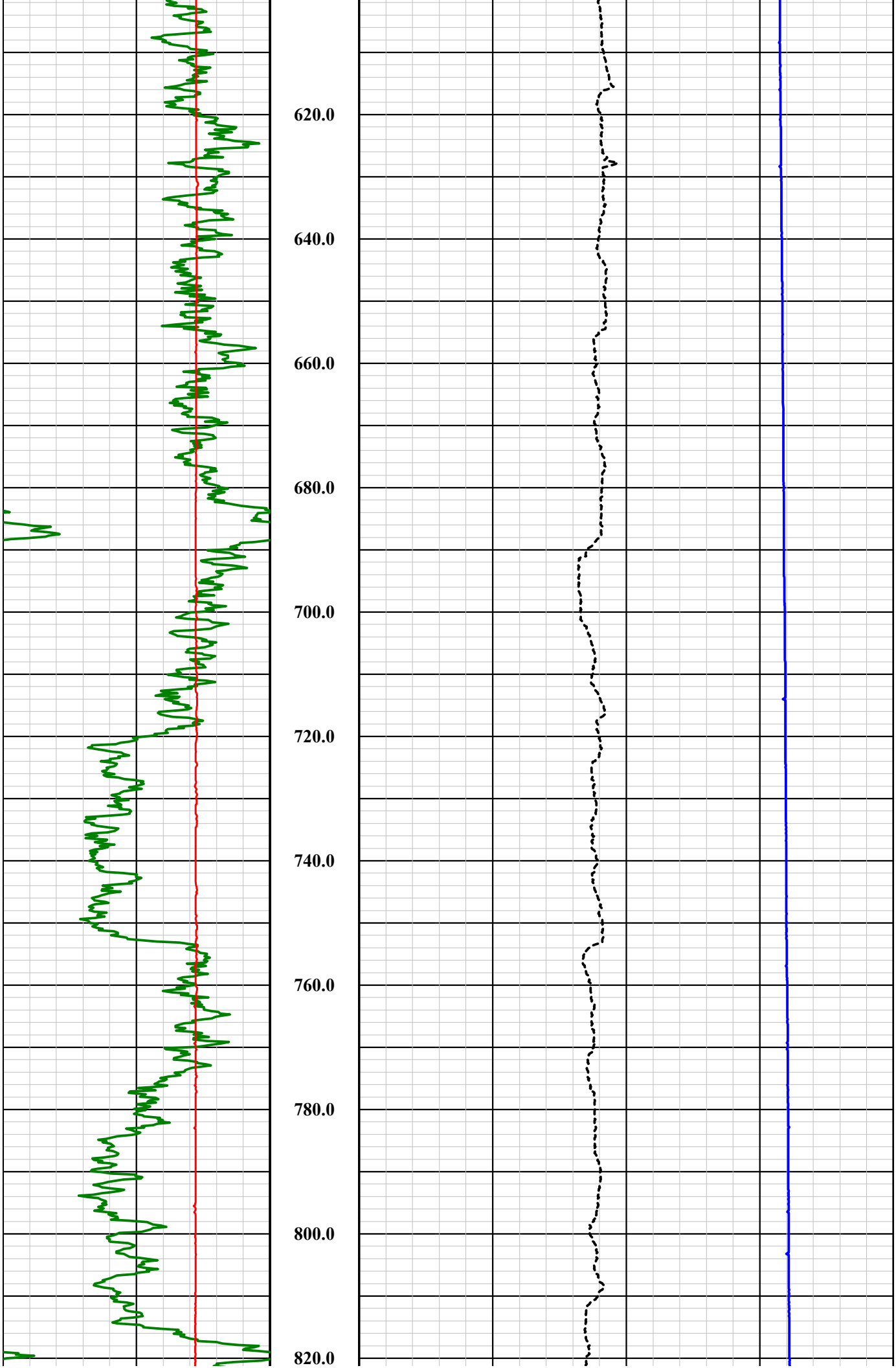
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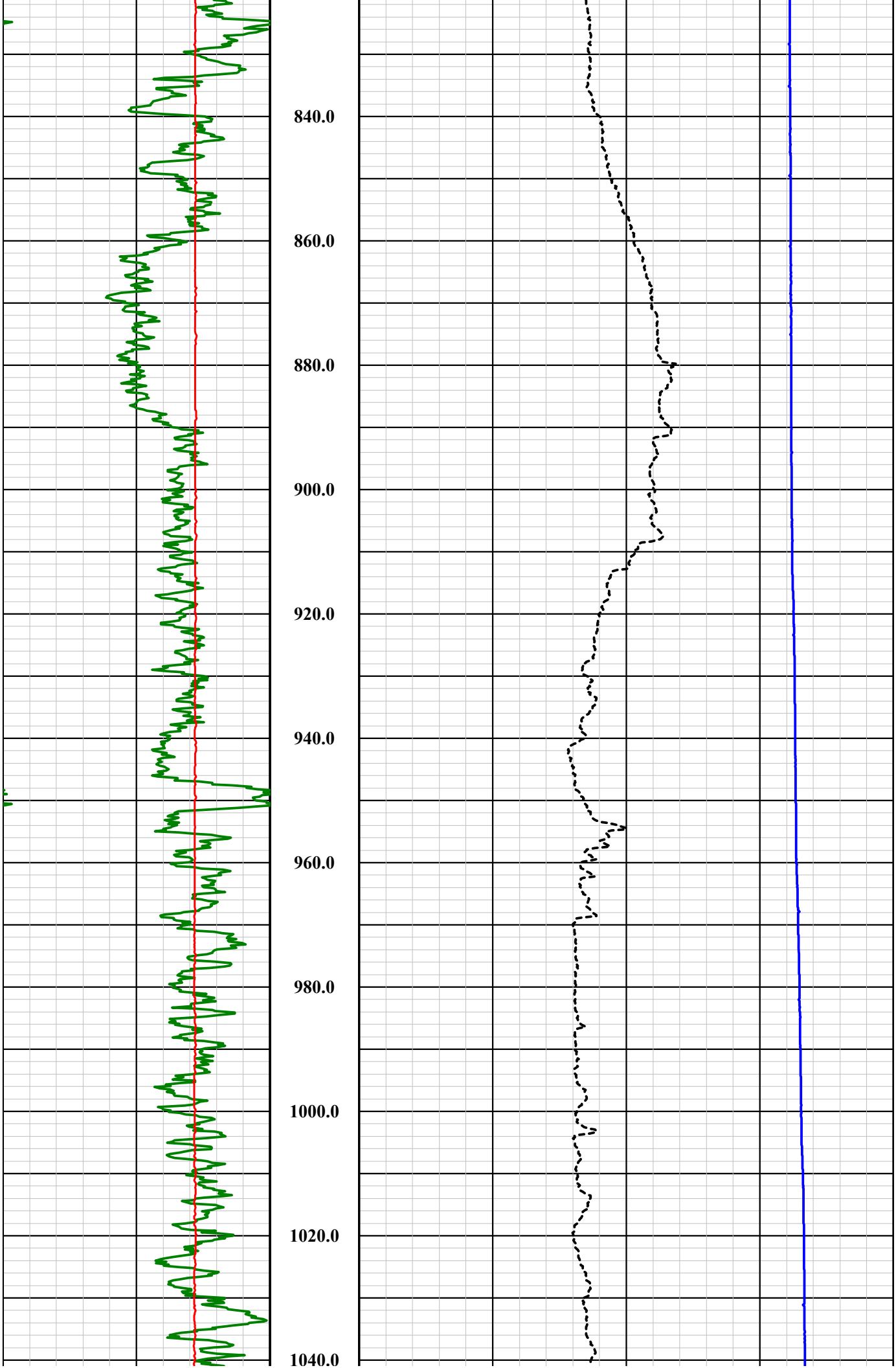
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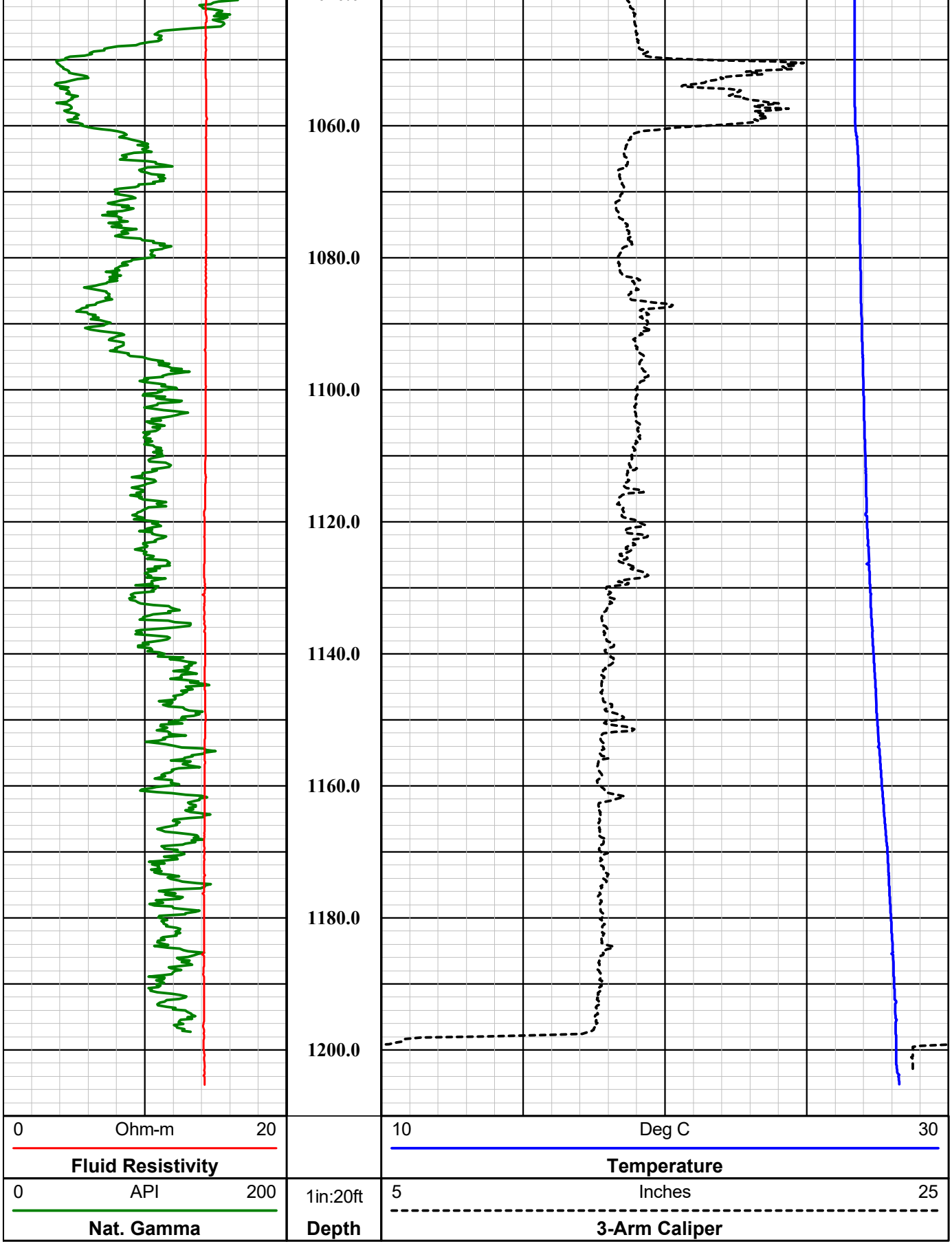
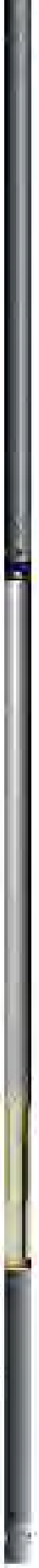


MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.

Single Conductor MSI Probe Top



Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC

Company	FLORENCE COPPER
Well	WB-02
Field	FLORENCE COPPER

borehole geophysics & video services

County	PINAL
State	ARIZONA

Final GCT Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	WB-02
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: 60mm SONIC
MORE: GAMMA - CALIPER

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
TEMPERATURE
FLUID RESISTIVITY
DEVIATION

PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL		G.L.

DATE	4-7-18	TYPE FLUID IN HOLE	MUD
RUN No	1 & 3	MUD WEIGHT	N/A
TYPE LOG	SONIC - GAMMA - CALIPER	VISCOSITY	N/A
DEPTH-DRILLER	1205 FT.	LEVEL	FULL
DEPTH-LOGGER	1200 FT.	MAX. REC. TEMP.	28.26 DEG. C
BTM LOGGED INTERVAL	1200 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.25 FT
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	MSI 60mm SONIC SN 5050
WITNESSED BY	GENO - H&A	LOG TIME:ON SITE/OFF SITE	12:00 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

.

Tool Summary:

Date	4-7-18	**Date**	4-7-18	**Date**	4-7-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60MM SONIC
Tool SN	5543	**Tool SN**	4035	**Tool SN**	5050
From	SURFACE	**From**	SURFACE	**From**	SURFACE
To	1200 FT.	**To**	1200 FT.	**To**	1200 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	4-6-18	**Operation Check**	4-6-18	**Operation Check**	4-6-18
Calibration Check	4-6-18	**Calibration Check**	4-6-18	**Calibration Check**	N/A
Time Logged	12:10 A.M.	**Time Logged**	1:10 A.M.	**Time Logged**	1:45 A.M.

Date	4-7-18	**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6
Tool Model	QL DEVIATION	**Tool Model**		**Tool Model**	
Tool SN	142201	**Tool SN**		**Tool SN**	
From	SURFACE	**From**		**From**	
To	1200 FT.	**To**		**To**	
Recorded By	A. OLSON	**Recorded By**		**Recorded By**	
Truck No	900	**Truck No**		**Truck No**	
Operation Check	4-6-18	**Operation Check**		**Operation Check**	
Calibration Check	N/A	**Calibration Check**		**Calibration Check**	
Time Logged	2:30 A.M.	**Time Logged**		**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

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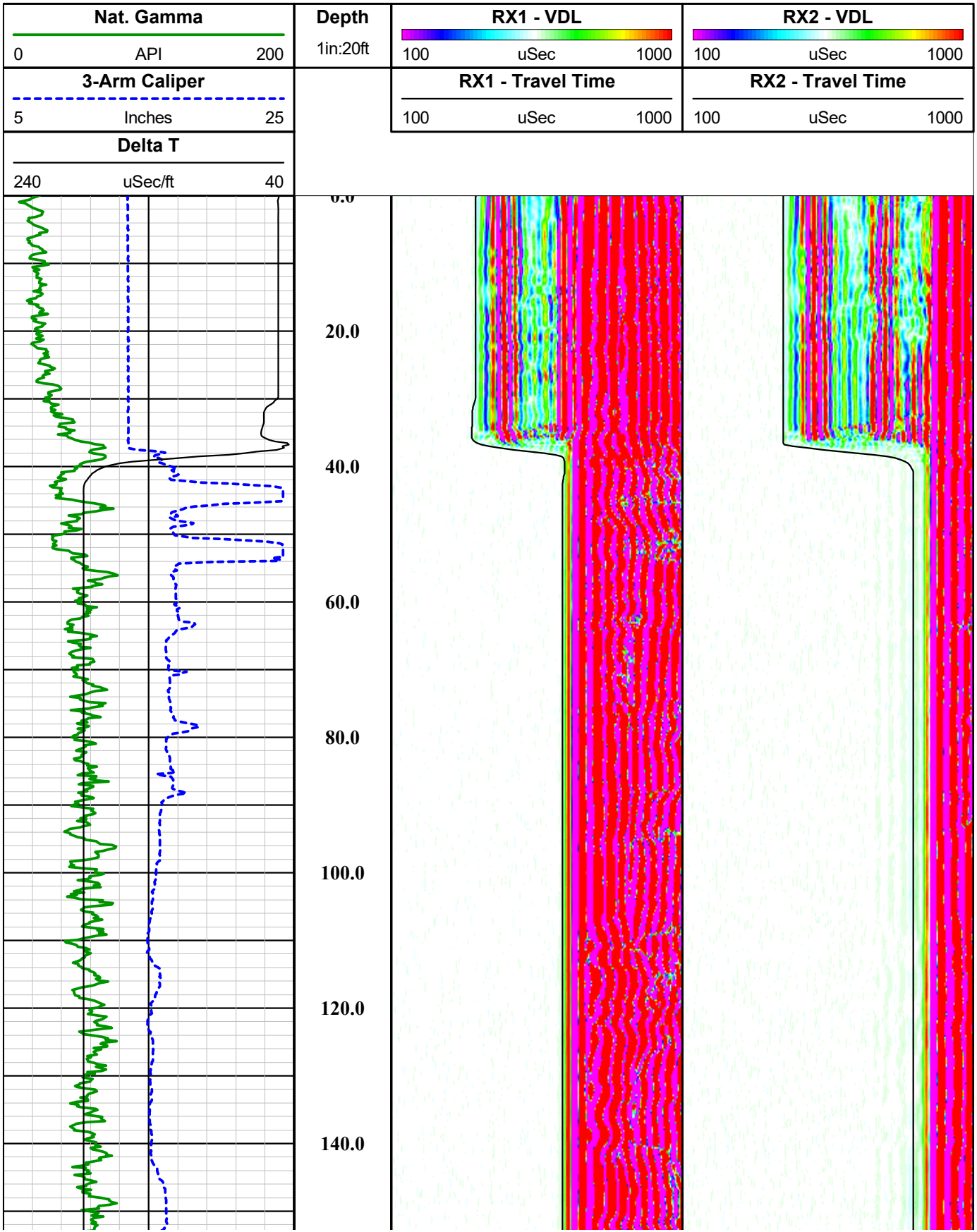

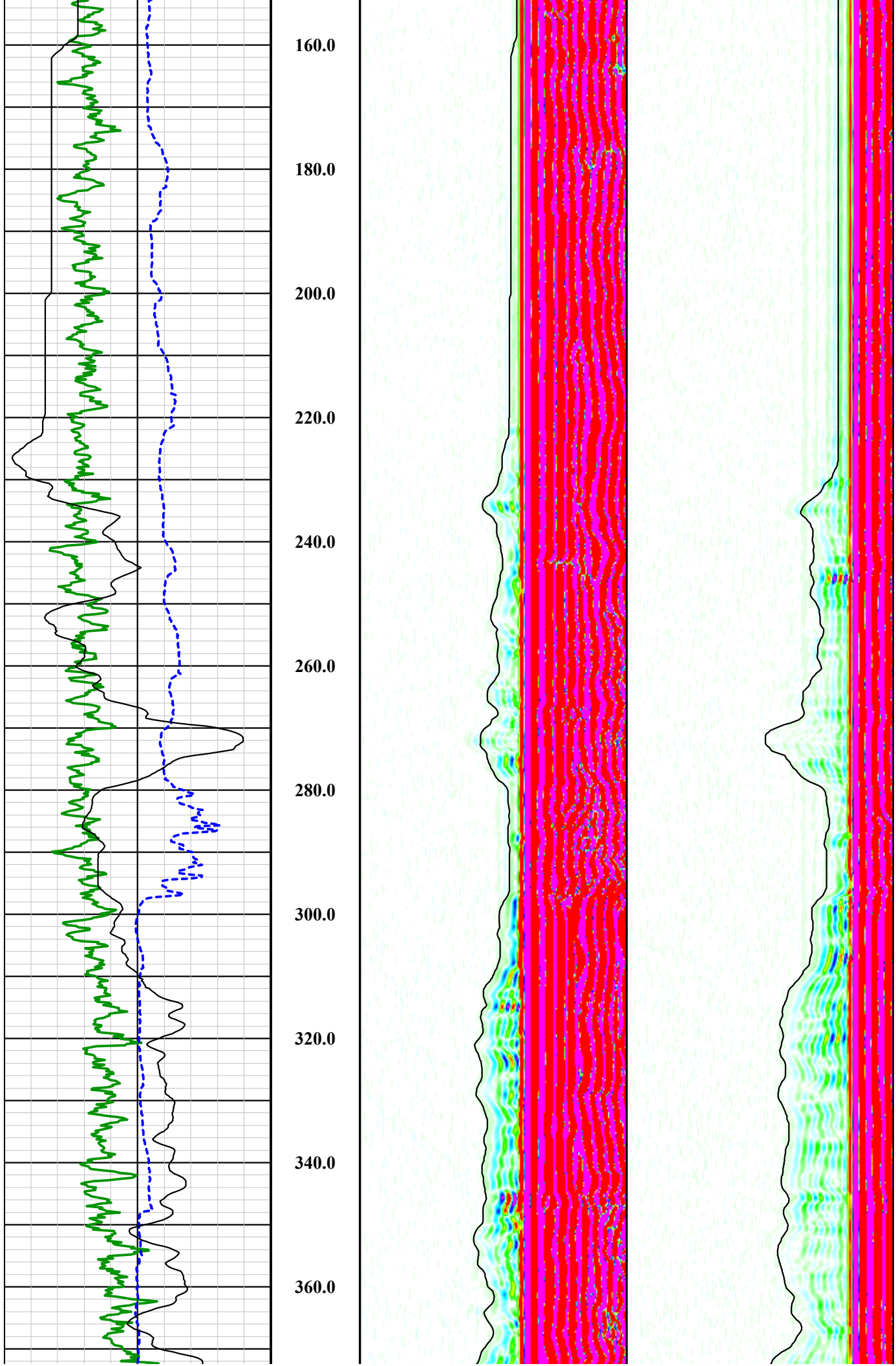
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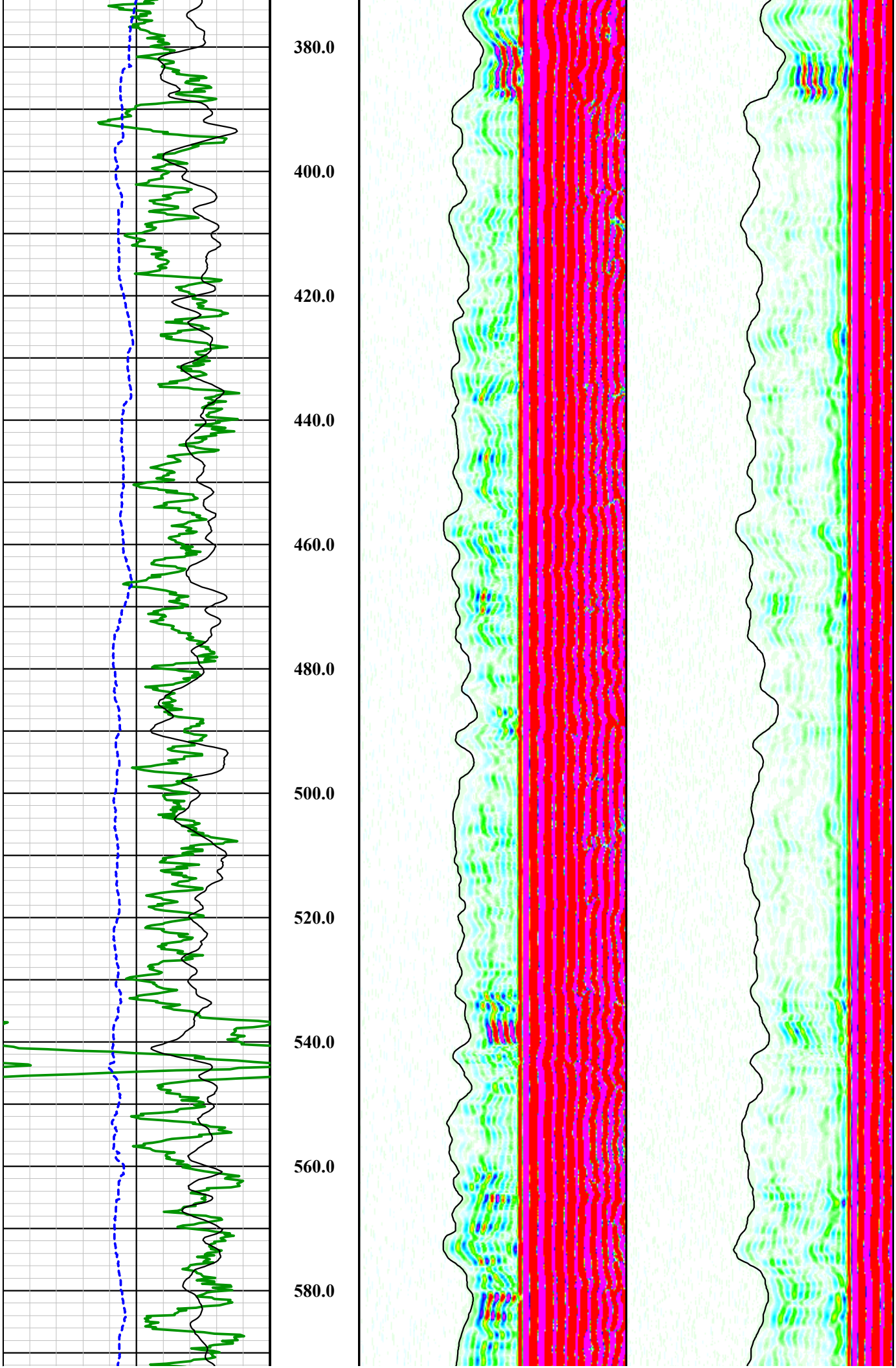
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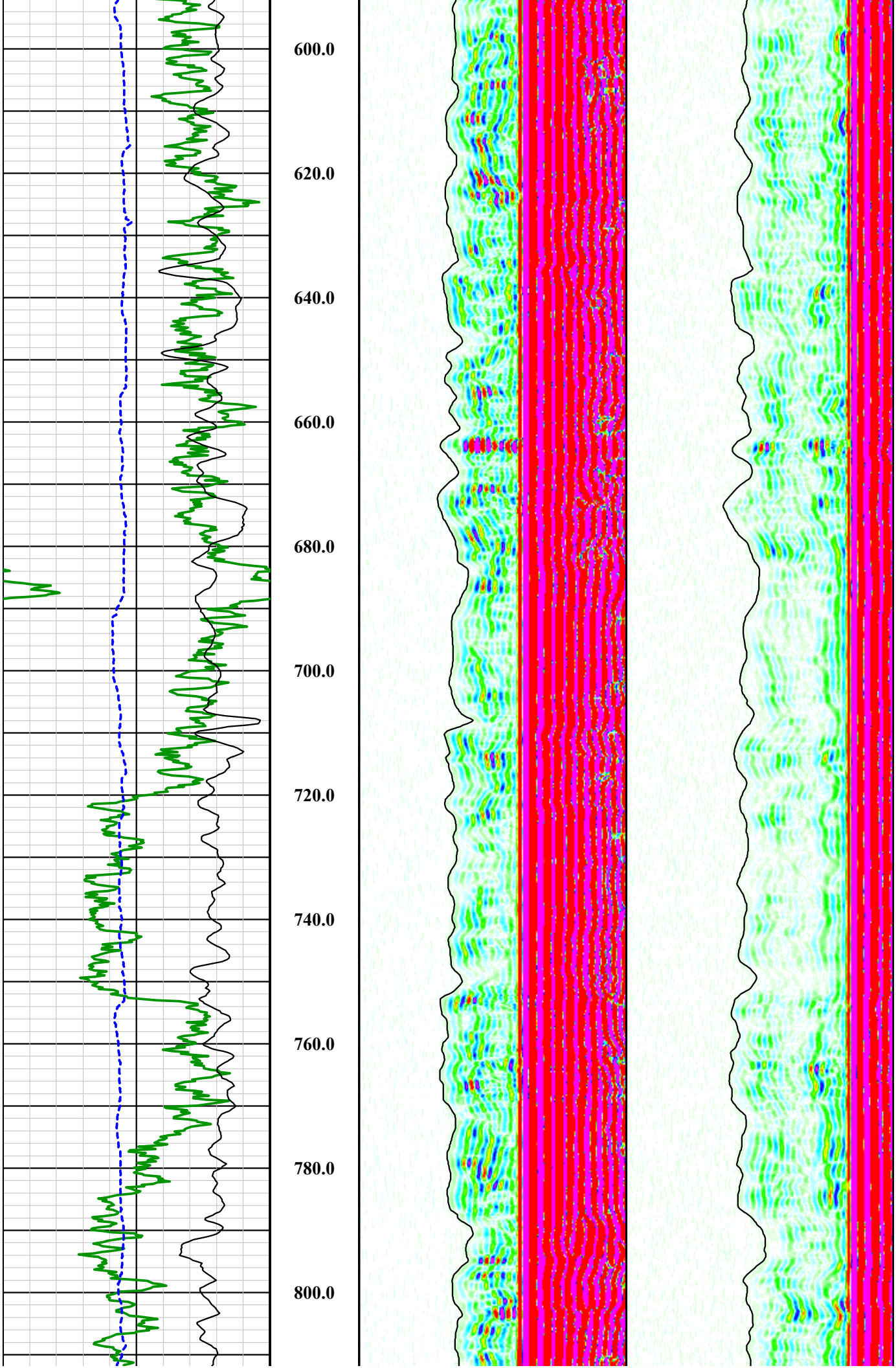
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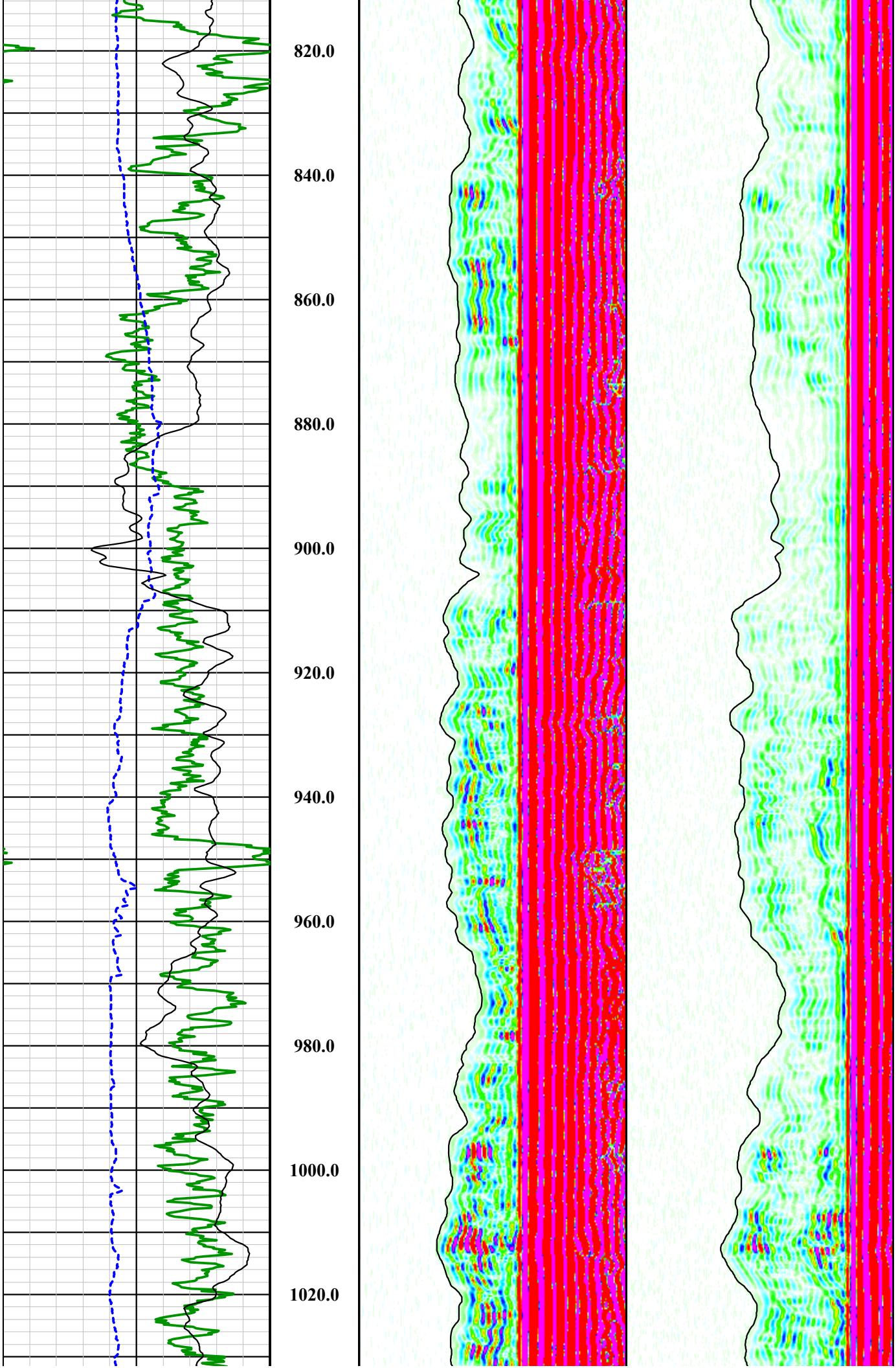
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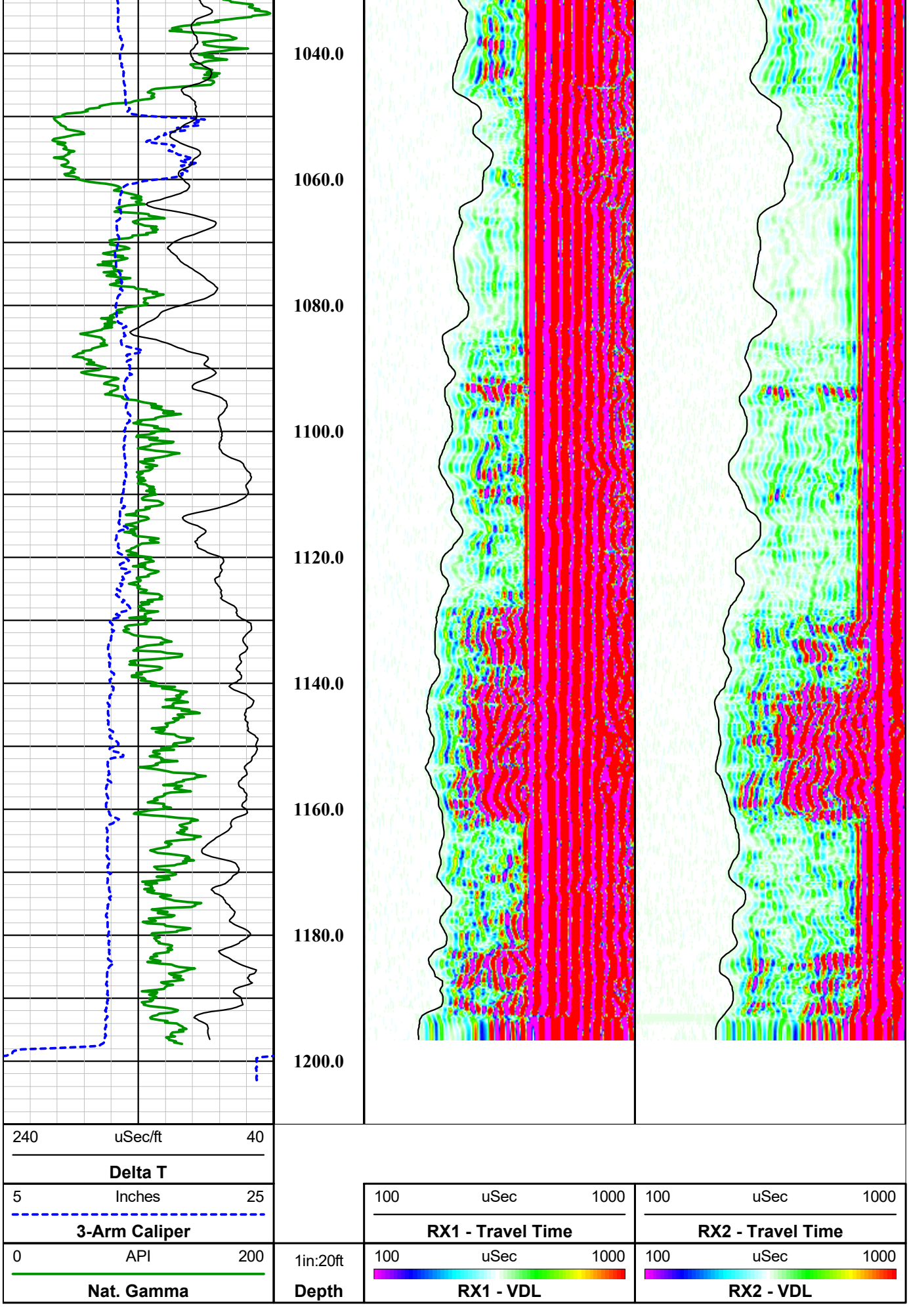


MSI 60 mm 2 RX Full Waveform Sonic Tool

Probe Top = Depth Ref.

Tool SN: 5001, 5050 & 6003

Four Conductor MSI Probe Top

Probe Length = 2.8 m or 9.19 ft
Probe Weight = ~26.5 kg or 58.4 lbs

Sensors: Ceramic Piezoelectric

Transmitter Frequency: 24 - 28 kHz resonant frequency

Rx - Rx Spacing: 0.3 m (12.0 in)

Typically centralized with external centralizers

Can only be collected in fluid

Temperature Rating: 80 Deg C (176 Deg F)
Presure Rating: 200 bar (2900 psi)

Rx-2 Tx - Rx2 Spacing = 1.22 m (48.0 in)

Rx-1 Tx - Rx1 Spacing = .91 m (36.0 in)

Acoustic Isolater

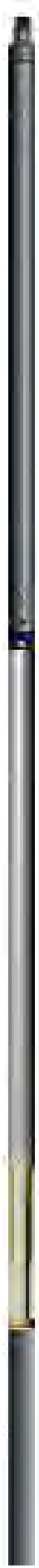
Tx = Acoustic Transmitter

0.660 m or 26.0 in. - End of tool to center of Tx

2.36 in or 60 mm Diameter

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	WB-02
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final Sonic Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	WB-02
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: 3-ARM CALIPER
MORE: W / VOLUME CALC.

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
SONIC
DEVIATION
NAT. GAMMA
TEMPERATURE
FLUID RESISTIVITY

PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL	G.L.

DATE	4-7-18	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	VOLUME CALCULATION	VISCOSITY	N/A
DEPTH-DRILLER	1205 FT.	LEVEL	FULL
DEPTH-LOGGER	1200 FT.	MAX. REC. TEMP.	28.26 DEG. C
BTM LOGGED INTERVAL	1200 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	MSI COMBO TOOL SN 5543
WITNESSED BY	GENO - H&A	LOG TIME:ON SITE/OFF SITE	12:00 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

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Tool Summary:

Date	4-7-18	**Date**	4-7-18	**Date**	4-7-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60MM SONIC
Tool SN	5543	**Tool SN**	4035	**Tool SN**	5050
From	SURFACE	**From**	SURFACE	**From**	SURFACE
To	1200 FT.	**To**	1200 FT.	**To**	1200 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	4-6-18	**Operation Check**	4-6-18	**Operation Check**	4-6-18
Calibration Check	4-6-18	**Calibration Check**	4-6-18	**Calibration Check**	N/A
Time Logged	12:10 A.M.	**Time Logged**	1:10 A.M.	**Time Logged**	1:45 A.M.

Date	4-7-18	**Date**	
Run No.	4	**Run No.**	5
Tool Model	QL DEVIATION	**Tool Model**	
Tool SN	142201	**Tool SN**	
From	SURFACE	**From**	
To	1200 FT.	**To**	
Recorded By	A. OLSON	**Recorded By**	
Truck No	900	**Truck No**	
Operation Check	4-6-18	**Operation Check**	
Calibration Check	N/A	**Calibration Check**	
Time Logged	2:30 A.M.	**Time Logged**	

Date		**Date**	
Run No.	6	**Run No.**	
Tool Model		**Tool Model**	
Tool SN		**Tool SN**	
From		**From**	
To		**To**	
Recorded By		**Recorded By**	
Truck No		**Truck No**	
Operation Check		**Operation Check**	
Calibration Check		**Calibration Check**	
Time Logged		**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

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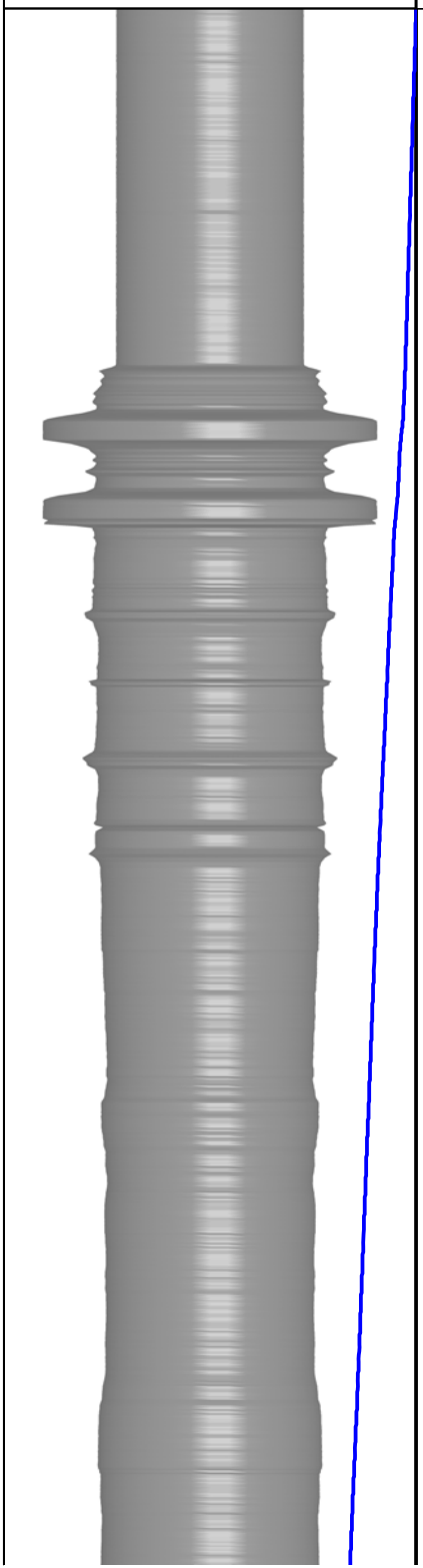
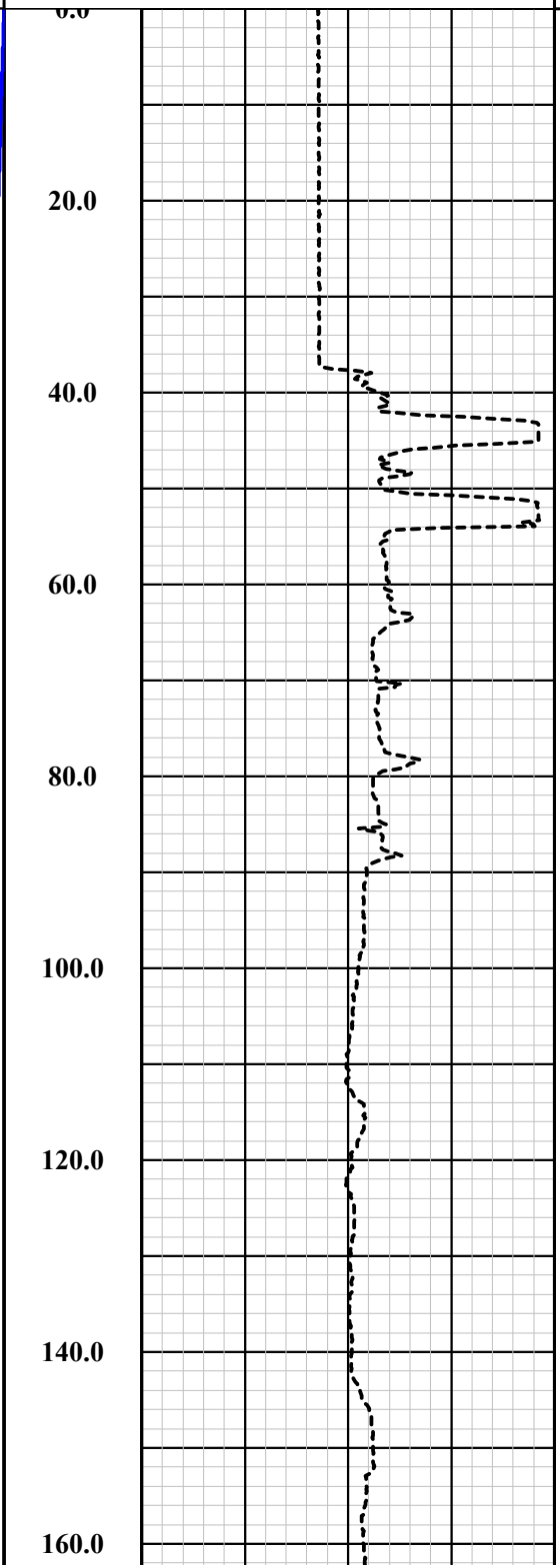
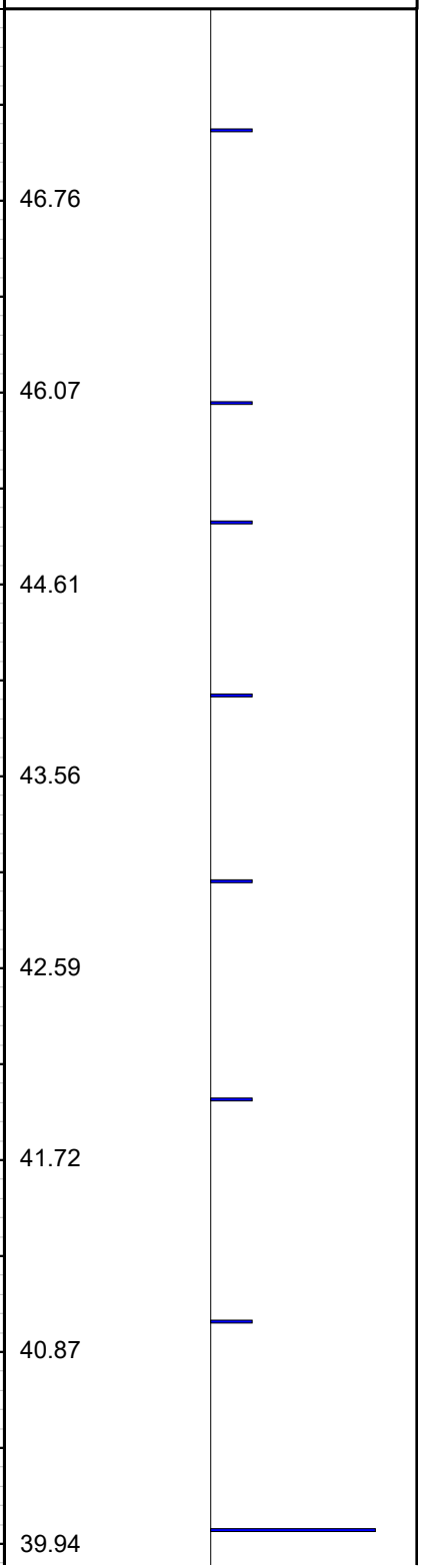
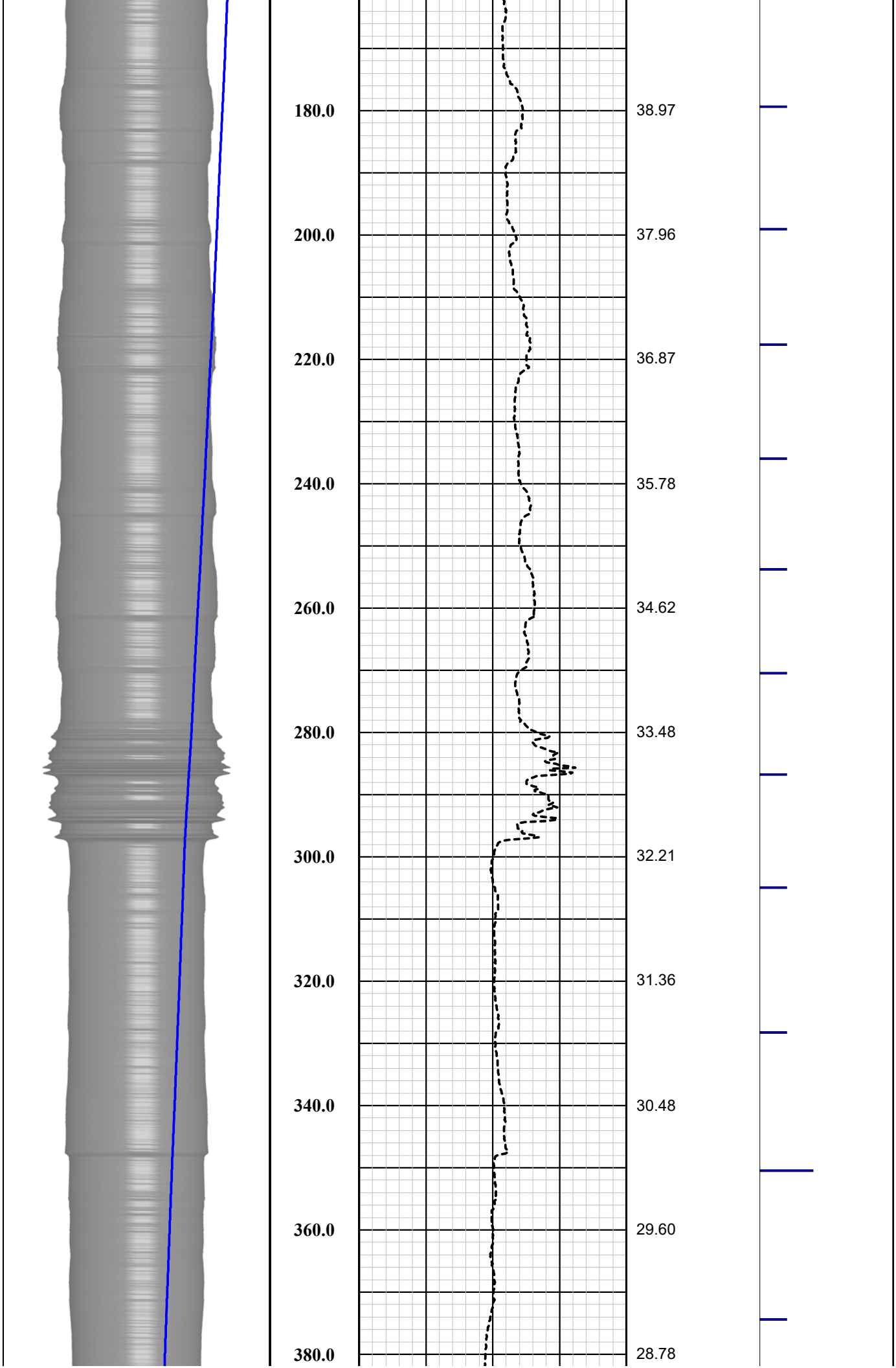
Total Volume	Depth	3-Arm Caliper	Cumulated Volume (cu.yd)
0 cu.yd 47.42	1in:20ft	5 Inches 25	
3-D View			Based on 4.4" OD Casing
-0°			





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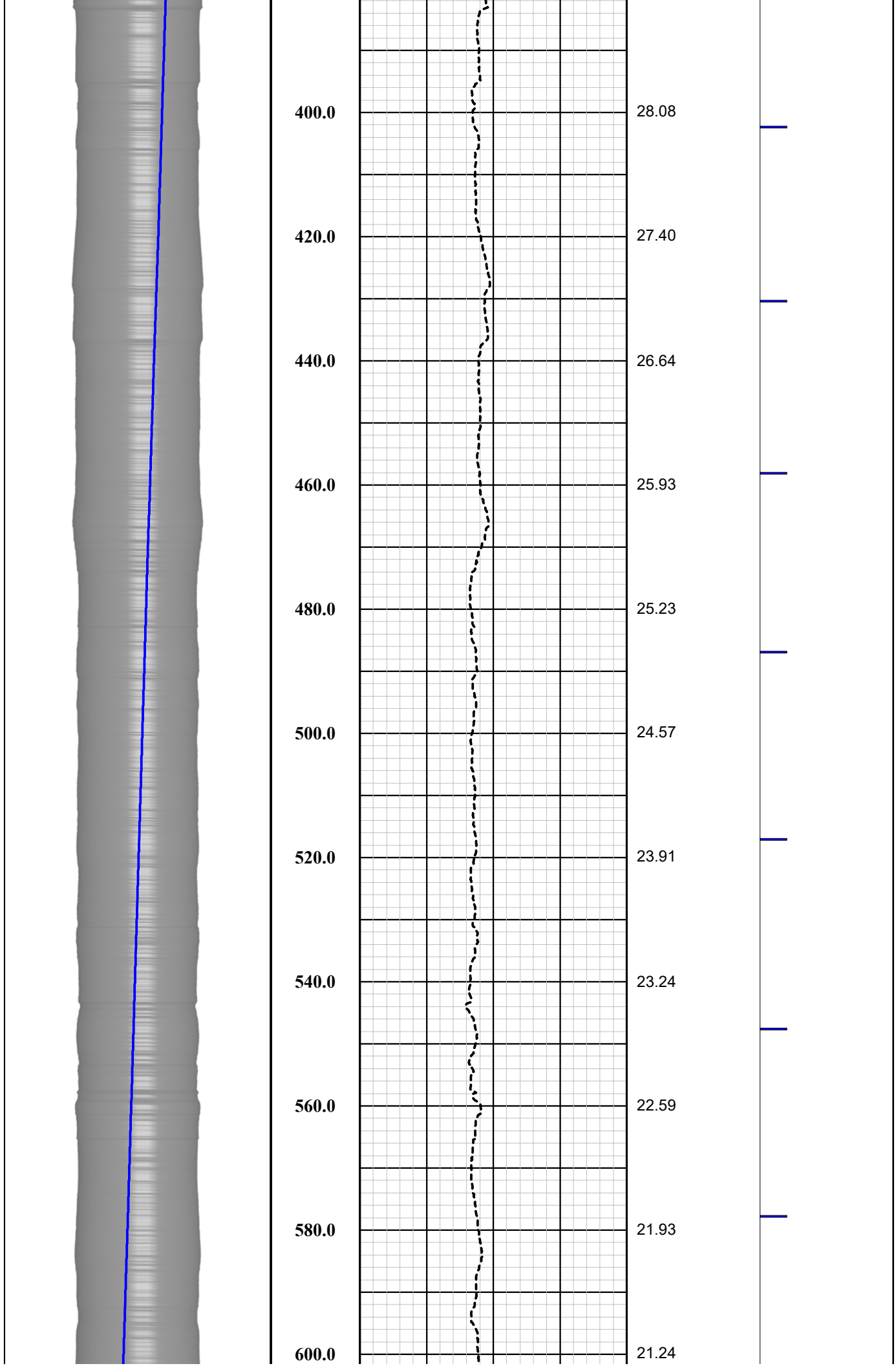
31.36
30.48
29.60
28.78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25.23
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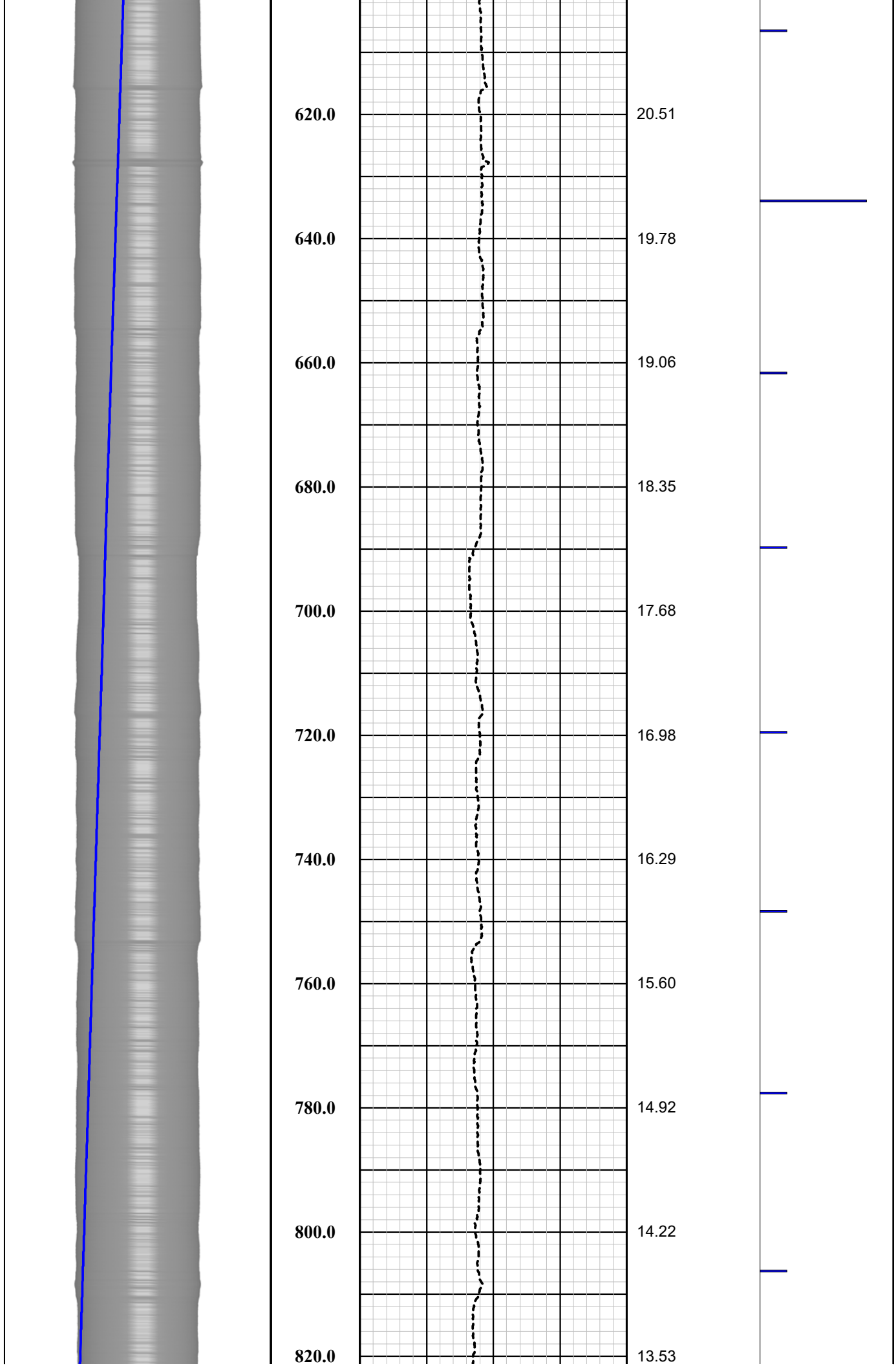
560.0
22.59
580.0
21.93
600.0
21.24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17.68
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740.0
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760.0
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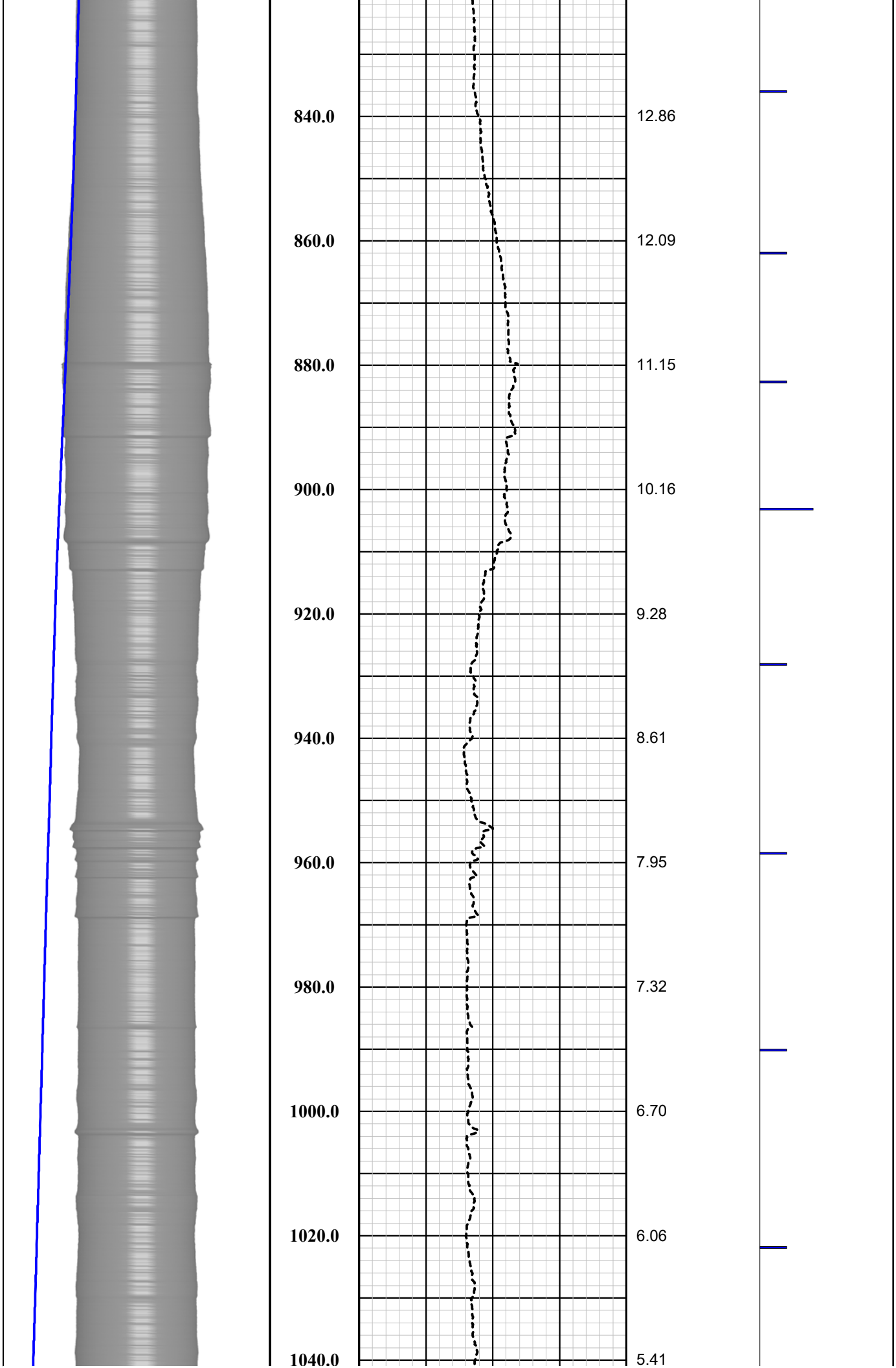
14.92
800.0
14.22
820.0
13.53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980.0
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1000.0
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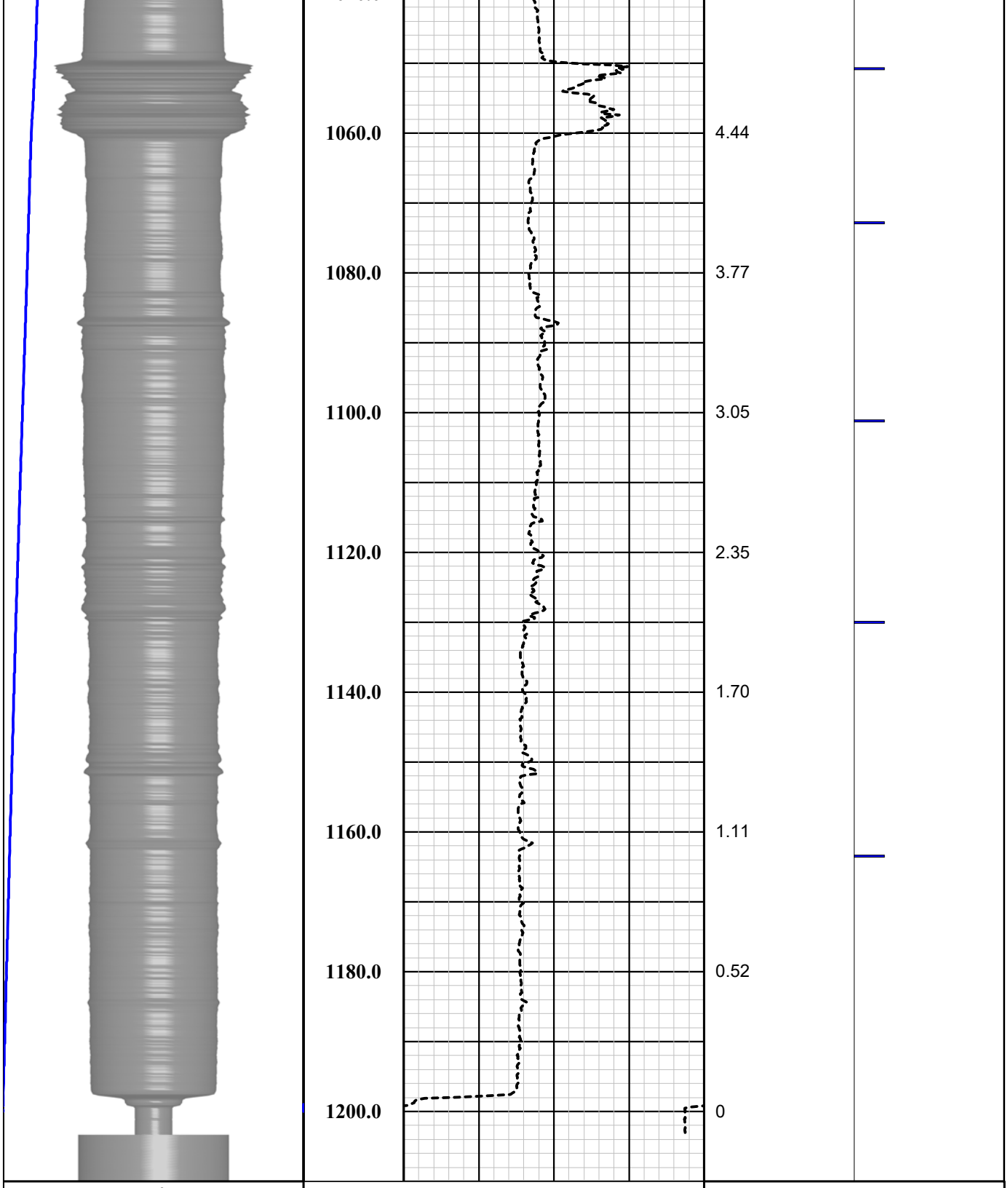
1020.0
6.06
1040.0
5.41

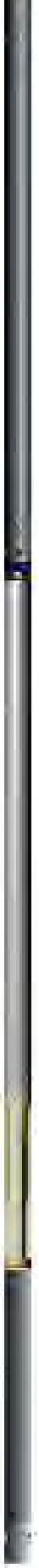


-0°		Based on 4.4" OD Casing
3-D View		
0 cu.yd 47.42	1in:20ft	5 Inches 25
Total Volume	Depth	3-Arm Caliper
		Cumulated Volume (cu.yd)

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.

Single Conductor MSI Probe Top



Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC

Company	FLORENCE COPPER
Well	WB-02
Field	FLORENCE COPPER

borehole geophysics & video services

County	PINAL
State	ARIZONA

Final Caliper w / Volume Calculation Summary

Drift Report

Wellbore DRIFT Interpretation

PREPARED ESPECIALLY FOR

FLORENCE COPPER

WB-02

Saturday - April 7, 2018

Southwest Exploration Services, LLC
borehole geophysics and video services

Southwest Exploration Services, LLC
(480) 926-4558

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

(480) 926-4558

Company: FLORENCE COPPER **Well Owner:**

County: PINAL **State:** Arizona **Country:** USA

Well Number: WB-02 **Survey Date:** Saturday - April 7, 2018 **Magnetic Declination:** Declination Correction Not Used

Field: FLORENCE COPPER **Drift Calculation Methodology:** Balanced Tangential Method

Location:

Remarks:

Witness: GENO - H&A **Vehicle No.:** 900 **Invoice No.:** **Operator:** A. OLSON **Well Depth:** 1200 Feet **Casing size:** 12.25 Inches

Tool: Compass - 142201 **Lat.:** **Long.:** **Sec.:** **Twp.:** **Rge.:**

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BGR., degrees
0	1.00	249.60	0.00						
20	0.40	292.20	19.99	-0.034	-0.228	1.00	1.70	0.23' (2.76")	261.40
40	0.60	329.90	39.98	0.083	-0.345	0.41	1.52	0.35' (4.20")	283.50
60	0.70	109.20	59.97	0.133	-0.282	0.96	4.40	0.31' (3.72")	295.30
80	0.60	177.80	79.96	-0.012	-0.163	0.84	2.64	0.16' (1.92")	265.80
100	0.40	219.30	99.96	-0.171	-0.203	0.42	1.66	0.27' (3.24")	230.00
120	0.60	260.20	119.95	-0.243	-0.350	0.13	1.64	0.43' (5.16")	235.30
140	0.50	337.40	139.94	-0.180	-0.487	0.43	2.93	0.52' (6.24")	249.70
160	0.50	345.70	159.93	-0.015	-0.542	0.83	0.34	0.54' (6.48")	268.40
180	0.80	001.90	179.92	0.209	-0.559	0.95	0.66	0.60' (7.20")	290.50
200	0.70	358.40	199.91	0.471	-0.558	0.37	0.14	0.73' (8.76")	310.20
220	0.70	073.50	219.90	0.628	-0.444	1.00	2.86	0.77' (9.24")	324.70
240	0.70	119.10	239.89	0.603	-0.220	1.00	1.82	0.64' (7.68")	340.00
260	0.70	202.80	259.88	0.431	-0.161	0.34	3.13	0.46' (5.52")	339.60
280	0.60	223.60	279.87	0.243	-0.281	0.93	0.85	0.37' (4.44")	310.80
300	0.90	162.20	299.86	0.018	-0.305	0.78	2.39	0.31' (3.72")	273.30
320	0.70	192.70	319.85	-0.251	-0.284	0.53	1.23	0.38' (4.56")	228.50
340	0.50	256.20	339.84	-0.391	-0.396	0.00	2.47	0.56' (6.72")	225.30

True Vertical Depth: 1199.42' **Final Drift Distance:** 9.77' (117.24") **Final Drift Bearing:** 186.50°

Note: Magnetic Declination is not used because it is not a factor in the calculation of well drift or alignment. Magnetic Declination is only important if attempting to hit a target or miss another well and then it is included in the calculations.

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

WB-02

(480) 926-4558

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
360	0.40°	013.40°	359.83	-0.344	-0.465	0.56	4.00	0.58' (6.96")	233.50
380	0.60°	102.90°	379.82	-0.299	-0.347	0.73	3.30	0.46' (5.52")	229.20
400	0.40°	156.30°	399.81	-0.386	-0.217	0.88	2.11	0.44' (5.28")	209.30
420	1.10°	189.40°	419.80	-0.639	-0.220	0.20	1.34	0.68' (8.16")	199.00
440	0.70°	171.90°	439.79	-0.949	-0.234	0.97	0.71	0.98' (11.76")	193.90
460	0.30°	171.90°	459.78	-1.122	-0.209	0.96	0.02	1.14' (13.68")	190.60
480	1.00°	204.30°	479.77	-1.333	-0.273	0.12	1.31	1.36' (16.32")	191.60
500	0.50°	215.10°	499.76	-1.563	-0.395	0.81	0.44	1.61' (19.32")	194.20
520	0.80°	198.00°	519.75	-1.767	-0.488	0.59	0.70	1.83' (21.96")	195.40
540	0.50°	120.90°	539.74	-1.945	-0.456	0.73	2.92	2.00' (24.00")	193.20
560	0.30°	062.40°	559.73	-1.966	-0.335	0.28	2.29	1.99' (23.88")	189.70
580	0.40°	238.90°	579.72	-1.978	-0.348	0.77	4.69	2.01' (24.12")	190.00
600	0.40°	177.60°	599.71	-2.084	-0.405	0.49	2.39	2.12' (25.44")	191.00
620	0.30°	281.30°	619.70	-2.143	-0.453	0.69	3.69	2.19' (26.28")	191.90
640	0.70°	181.10°	639.69	-2.255	-0.507	0.13	3.60	2.31' (27.72")	192.70
660	0.90°	210.60°	659.68	-2.512	-0.589	0.83	1.19	2.58' (30.96")	193.20
680	0.50°	158.20°	679.67	-2.728	-0.637	0.80	2.07	2.80' (33.60")	193.10
700	0.50°	160.90°	699.66	-2.891	-0.576	0.25	0.11	2.95' (35.40")	191.30
720	0.80°	168.50°	719.65	-3.110	-0.520	0.54	0.31	3.15' (37.80")	189.50
740	0.90°	194.40°	739.64	-3.399	-0.531	0.24	1.05	3.44' (41.28")	188.90
760	0.90°	143.30°	759.63	-3.677	-0.476	0.94	2.02	3.71' (44.52")	187.40
780	1.00°	188.10°	779.62	-3.976	-0.407	0.65	1.79	4.00' (48.00")	185.80
800	1.20°	202.10°	799.61	-4.343	-0.510	0.97	0.57	4.37' (52.44")	186.70
820	0.50°	225.00°	819.60	-4.599	-0.650	0.06	0.93	4.64' (55.68")	188.10
840	0.80°	181.40°	839.59	-4.800	-0.715	0.29	1.74	4.85' (58.20")	188.50
860	1.00°	194.70°	859.58	-5.108	-0.763	0.57	0.54	5.17' (62.04")	188.50
880	1.50°	194.30°	879.57	-5.530	-0.872	0.47	0.03	5.60' (67.20")	189.00
900	1.90°	185.40°	899.56	-6.114	-0.968	0.42	0.36	6.19' (74.28")	189.00
920	1.50°	157.90°	919.55	-6.687	-0.901	0.69	1.11	6.75' (81.00")	187.70
940	0.80°	107.30°	939.54	-6.971	-0.669	0.04	2.00	7.00' (84.00")	185.50
960	0.60°	053.50°	959.53	-6.950	-0.452	0.30	2.12	6.96' (83.52")	183.70
980	0.80°	157.10°	979.52	-7.016	-0.313	0.98	3.69	7.02' (84.24")	182.60
1,000	0.60°	177.40°	999.52	-7.249	-0.254	0.95	0.83	7.25' (87.00")	182.00

True Vertical Depth: 1199.42' **Final Drift Distance: 9.77' (117.24")** **Final Drift Bearing: 186.50°**

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

WB-02

(480) 926-4558

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
1,020	0.90°	164.30°	1,019.51	-7.505	-0.207	0.96	0.54	7.51' (90.12")	181.60
1,040	0.60°	196.80°	1,039.50	-7.756	-0.195	0.46	1.31	7.76' (93.12")	181.40
1,060	0.80°	288.00°	1,059.49	-7.813	-0.358	0.25	3.35	7.82' (93.84")	182.60
1,080	1.20°	209.10°	1,079.48	-7.953	-0.593	0.92	2.98	7.97' (95.64")	184.30
1,100	1.10°	200.10°	1,099.47	-8.316	-0.761	0.09	0.37	8.35' (100.20")	185.20
1,120	1.20°	196.30°	1,119.46	-8.697	-0.886	0.16	0.16	8.74' (104.88")	185.80
1,140	1.40°	204.30°	1,139.45	-9.121	-1.045	0.98	0.33	9.18' (110.16")	186.50
1,160	0.50°	191.00°	1,159.44	-9.429	-1.162	0.54	0.54	9.50' (114.00")	187.00
1,180	0.20°	227.50°	1,179.43	-9.538	-1.204	0.80	1.47	9.61' (115.32")	187.20
1,200	1.10°	140.40°	1,199.42	-9.710	-1.107	0.66	3.23	9.77' (117.24")	186.50

True Vertical Depth: 1199.42'

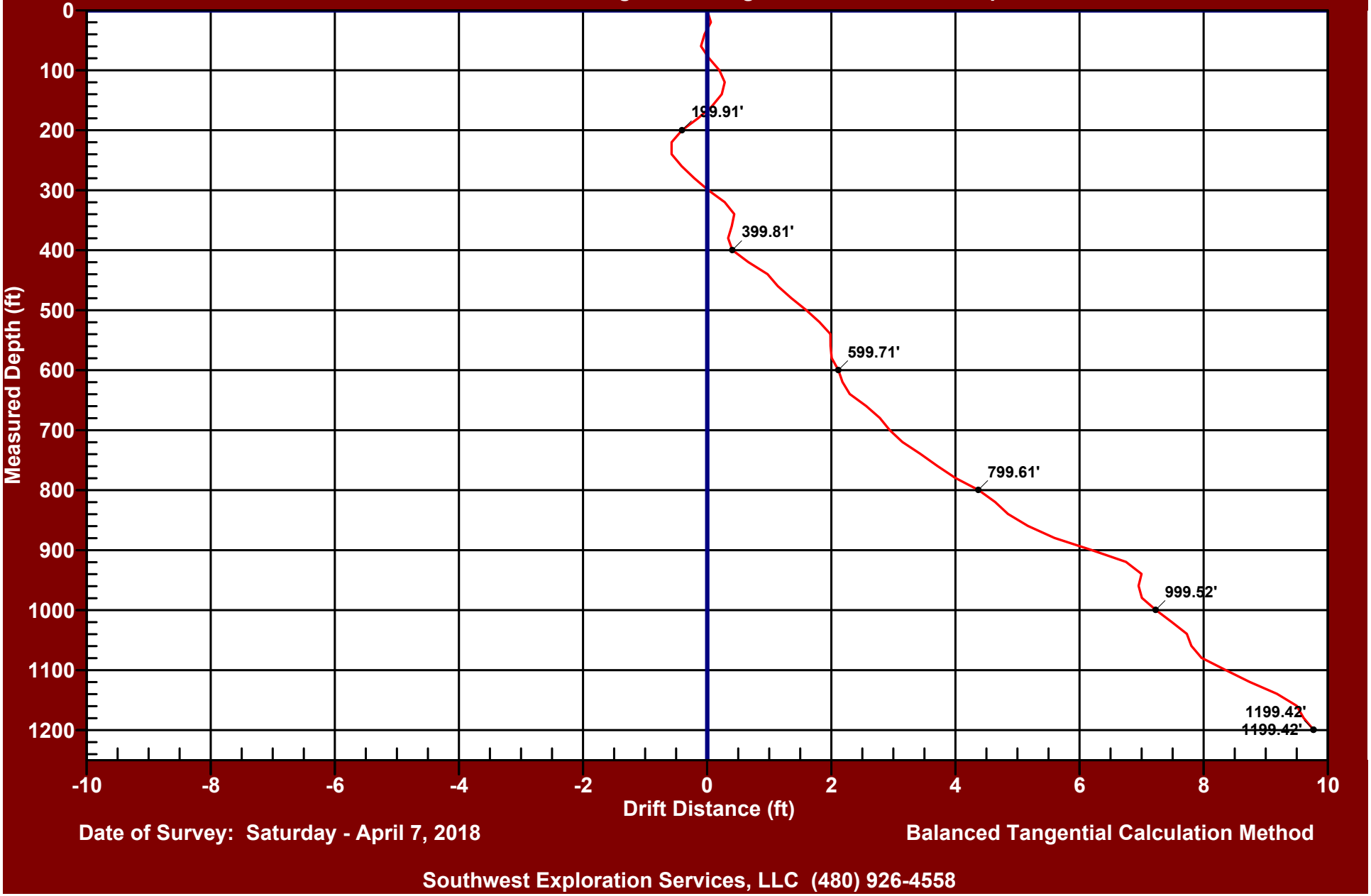
Final Drift Distance: 9.77' (117.24")

Final Drift Bearing: 186.50°

PLANE OF DRIFT VIEW - WB-02

FLORENCE COPPER

Drift Distance = 9.77 Feet Drift Bearing = 186.5 Degrees True Vertical Depth = 1199.42 Feet



Date of Survey: Saturday - April 7, 2018

Balanced Tangential Calculation Method

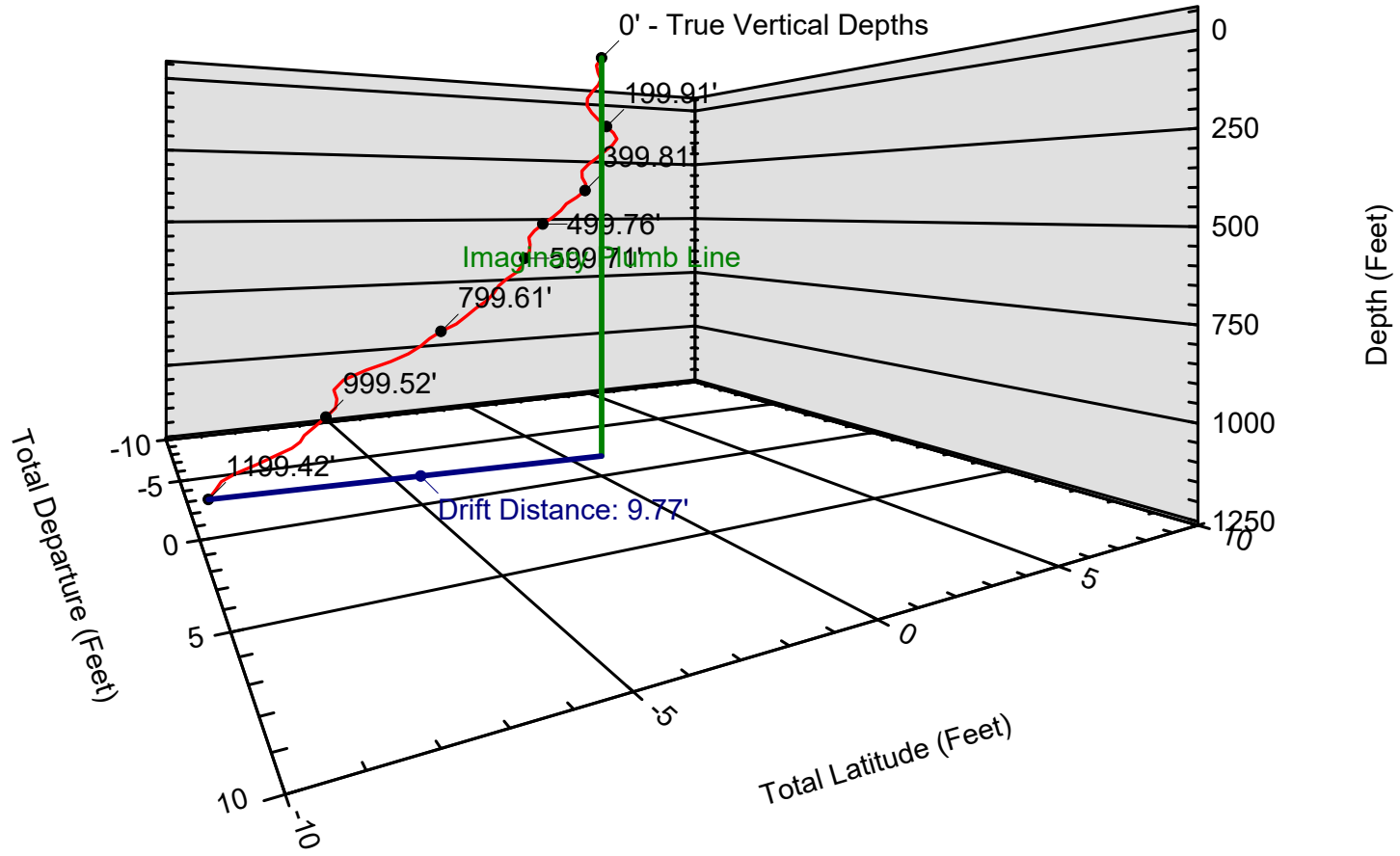
Southwest Exploration Services, LLC (480) 926-4558

3D PROJECTION VIEW - WB-02

FLORENCE COPPER

Drift Distance = 9.77 Feet **Drift Bearing = 186.5 Degrees** **True Vertical Depth = 1199.42 Feet**

241.0



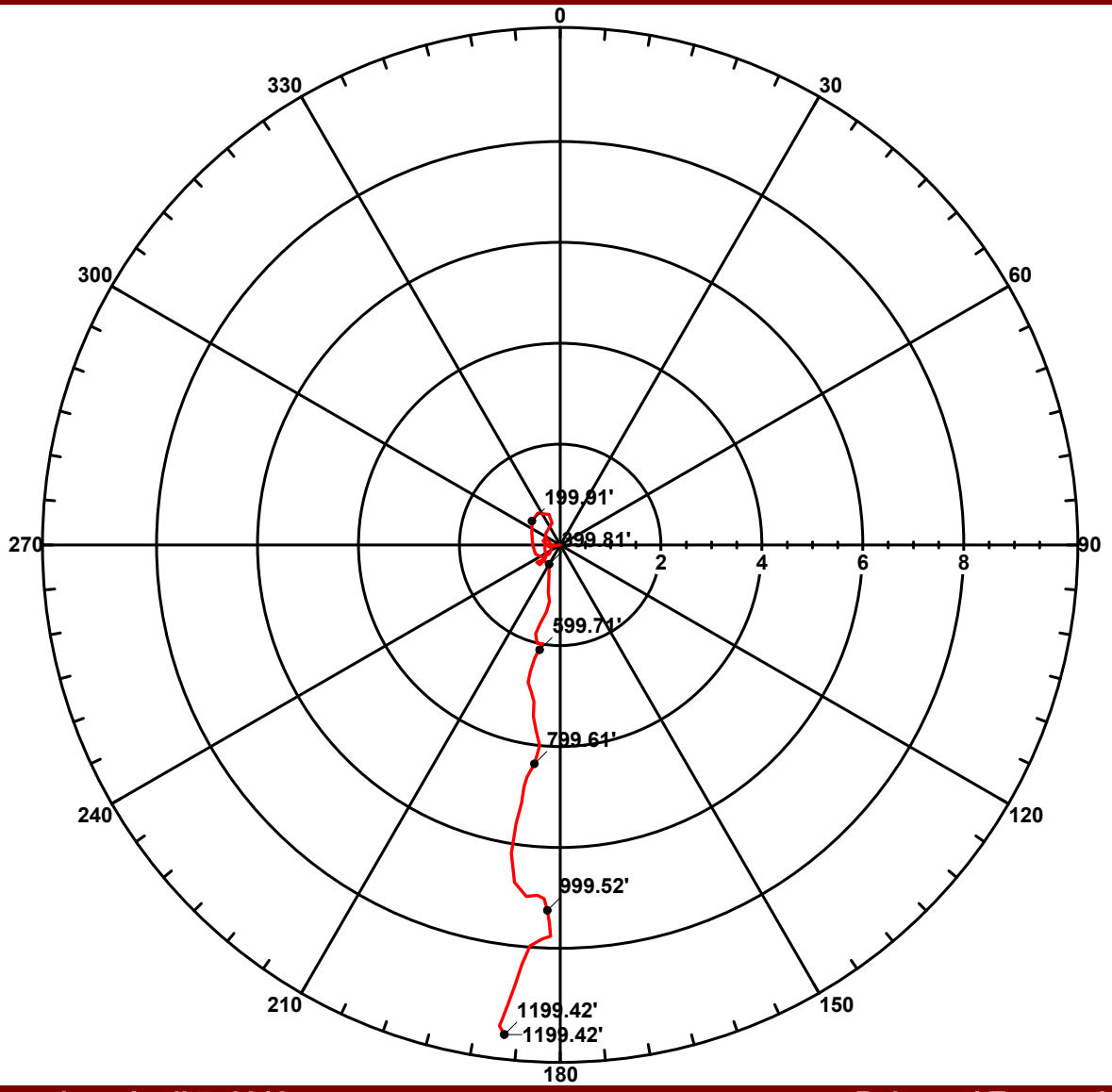
Date of Survey: Saturday - April 7, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

POLAR VIEW - WB-02

FLORENCE COPPER

Drift Distance = 9.77 Feet Drift Bearing = 186.5 Degrees True Vertical Depth = 1199.42 Feet



Date of Survey: Saturday - April 7, 2018 **Balanced Tangential Calculation Method**

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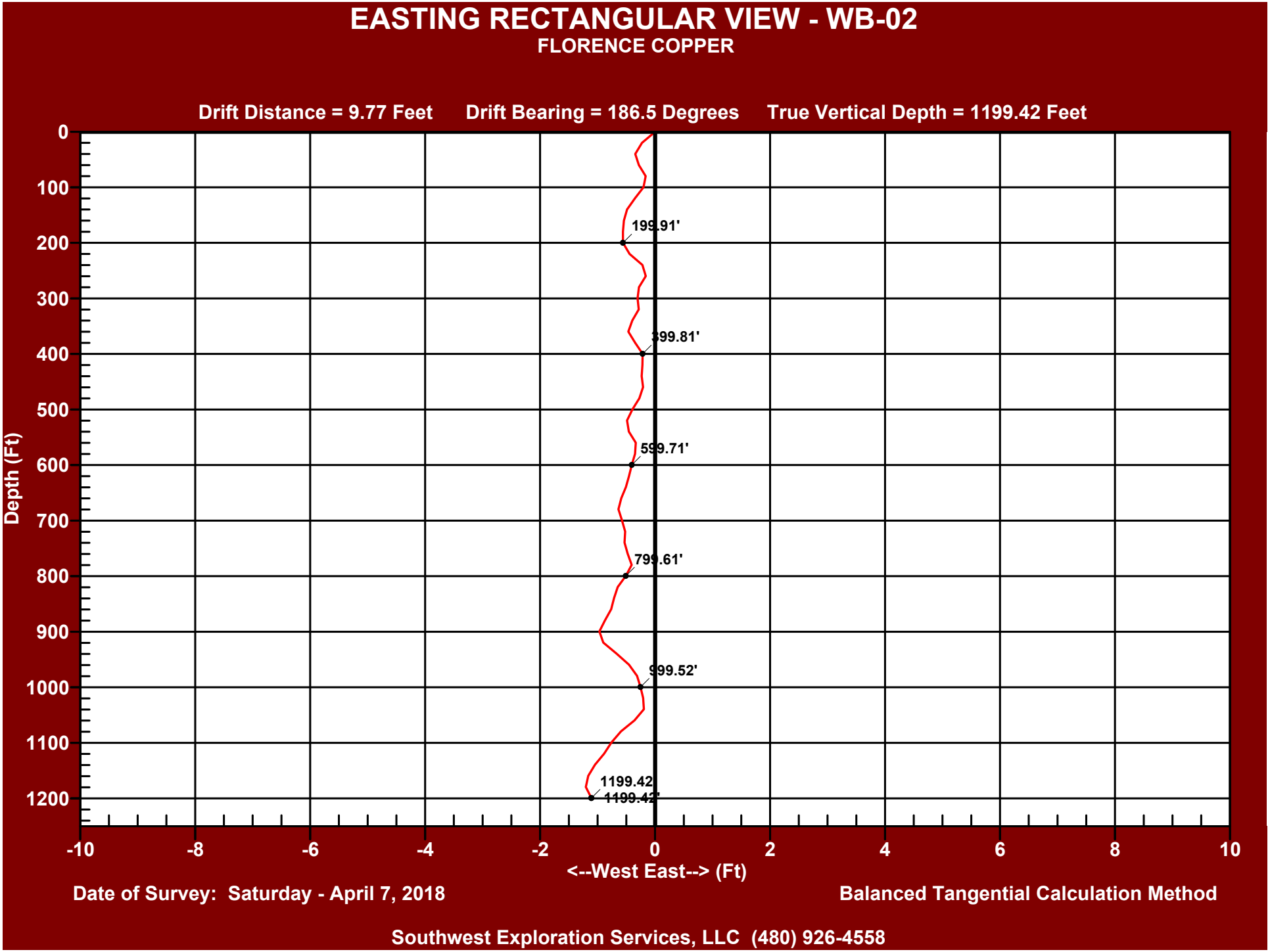
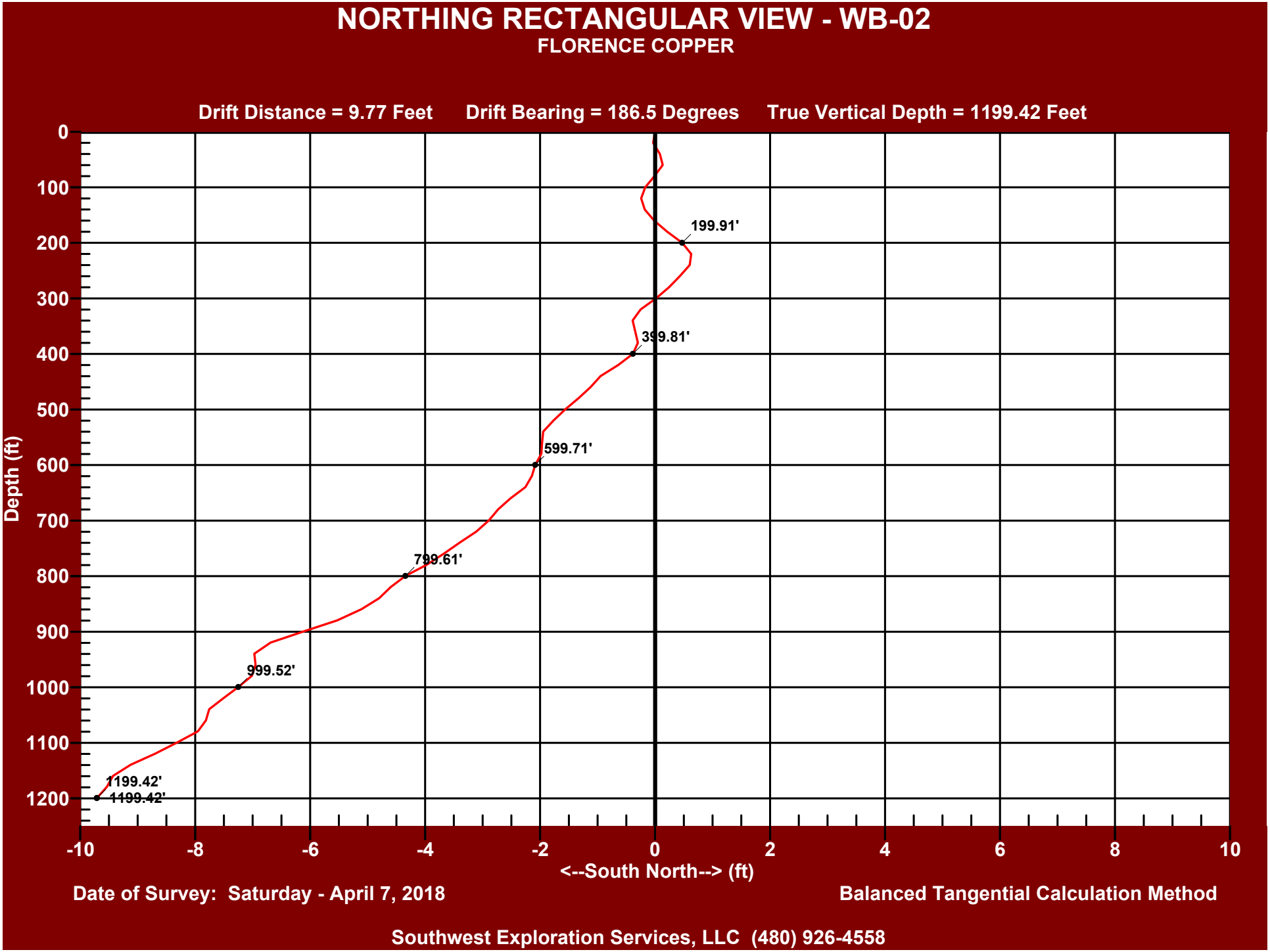

EASTING RECTANGULAR VIEW - WB-02
FLORENCE COPPER
Drift Distance = 9.77 Feet
Drift Bearing = 186.5 Degrees
True Vertical Depth = 1199.42 Feet
Depth (Ft)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
199.91'
399.81'
599.71'
799.61'
999.52'
1199.42
1199.42'
-10
-8
-6
-4
-2
0
2
4
6
8
10
<--West East--> (Ft)
Date of Survey: Saturday - April 7, 2018
Balanced Tangential Calculation Method
Southwest Exploration Services, LLC (480) 926-4558


NORTHING RECTANGULAR VIEW - WB-02
FLORENCE COPPER
Drift Distance = 9.77 Feet
Drift Bearing = 186.5 Degrees
True Vertical Depth = 1199.42 Feet
Depth (ft)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
199.91'
399.81'
599.71'
799.61'
999.52'
1199.42'
1199.42'
-10
-8
-6
-4
-2
0
2
4
6
8
10
<--South North--> (ft)
Date of Survey: Saturday - April 7, 2018
Balanced Tangential Calculation Method
Southwest Exploration Services, LLC (480) 926-4558

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER		
WELL ID	WB-02		
FIELD	FLORENCE COPPER		
COUNTY	PINAL	STATE	ARIZONA
LOCATION	SEC TWP RGE	OTHER SERVICES	SONIC 4 PI DENSITY DUAL DENSITY
TYPE OF LOGS: GAMMA - CALIPER		K.B.	
MORE: TEMP. / FLUID RES.	ELEVATION	D.F.	
PERMANENT DATUM		G.L.	
LOG MEAS. FROM GROUND LEVEL	ABOVE PERM. DATUM		
DRILLING MEAS. FROM GROUND LEVEL			

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	?	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH	4 IN.	FG	SURFACE	500 FT.
3				4 IN.	PVC	500 FT.	TOTAL DEPTH

DATE	4-19-18	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	GAMMA - CALIPER - TFR	VISCOSITY	N/A
DEPTH-DRILLER	1200 FT.	LEVEL	~241 FT.
DEPTH-LOGGER	1170 FT.	MAX. REC. TEMP.	28.84 DEG. C
BTM LOGGED INTERVAL	1170 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON	TOOL STRING/SN	MSI COMBO TOOL SN 4183
WITNESSED BY	COLLIN - H&A	LOG TIME:ON SITE/OFF SITE	11:15 A.M.

.

Tool Summary:

Date	4-19-18	**Date**	4-19-18	**Date**	4-19-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	ALT 4 RX SONIC	**Tool Model**	COMPROBE 4 PI
Tool SN	4183	**Tool SN**	4572	**Tool SN**	6009
From	SURFACE	**From**	200 FT.	**From**	SURFACE
To	1170 FT.	**To**	1170 FT.	**To**	1170 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	4-18-18	**Operation Check**	4-18-18	**Operation Check**	4-18-18
Calibration Check	4-18-18	**Calibration Check**	N/A	**Calibration Check**	N/A
Time Logged	12:20 P.M.	**Time Logged**	1:15 P.M.	**Time Logged**	2:15 P.M.

Date	4-19-18	**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6
Tool Model	ALT QL DENSITY	**Tool Model**		**Tool Model**	
Tool SN	6187	**Tool SN**		**Tool SN**	
From	SURFACE	**From**		**From**	
To	1170 FT.	**To**		**To**	
Recorded By	A. OLSON	**Recorded By**		**Recorded By**	
Truck No	900	**Truck No**		**Truck No**	
Operation Check	4-18-18	**Operation Check**		**Operation Check**	
Calibration Check	N/A	**Calibration Check**		**Calibration Check**	
Time Logged	2:50 P.M.	**Time Logged**		**Time Logged**	

Additional Comments:

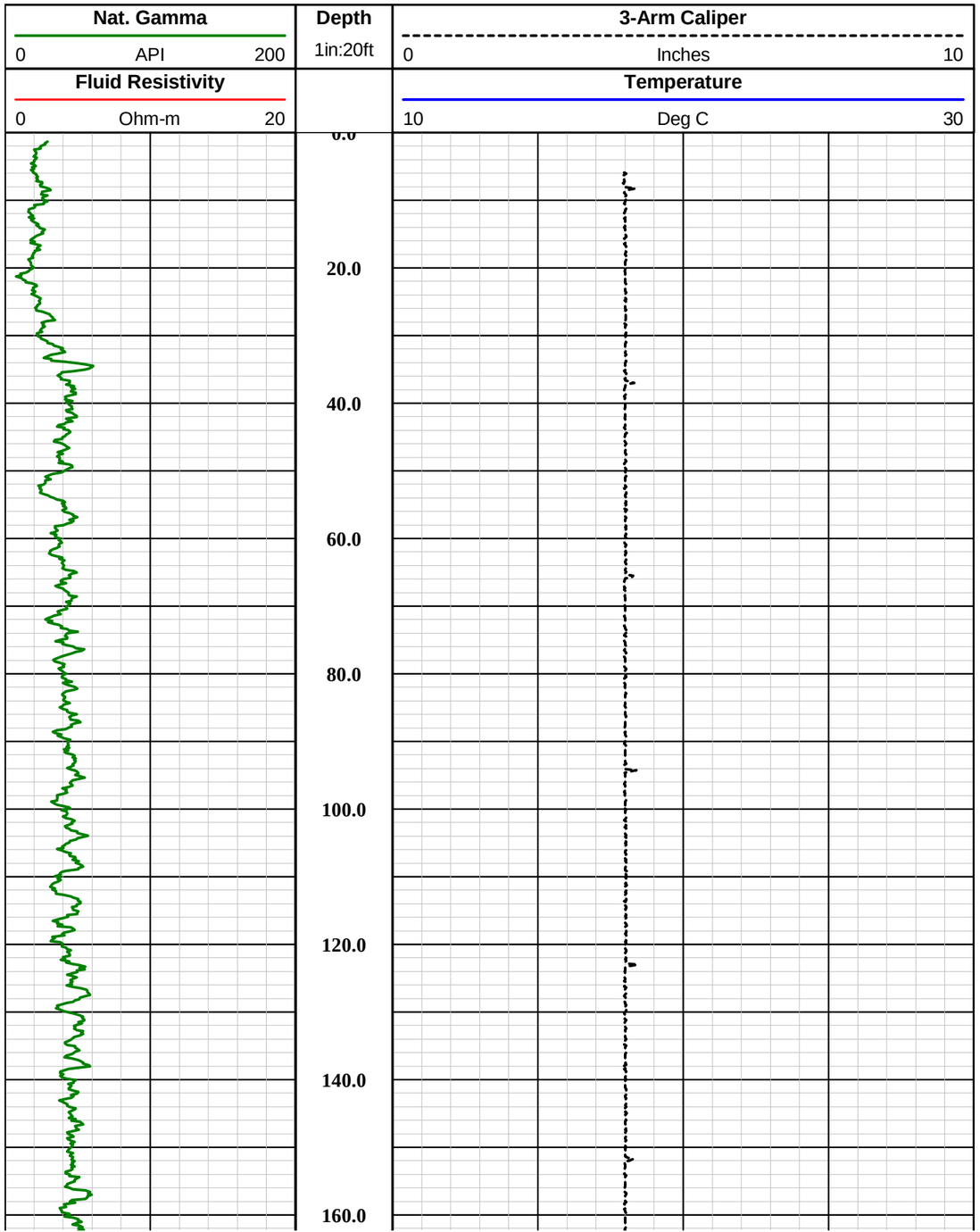
Caliper Arms Used: 9 IN. **Calibration Points:** 4 IN. & 12 IN.

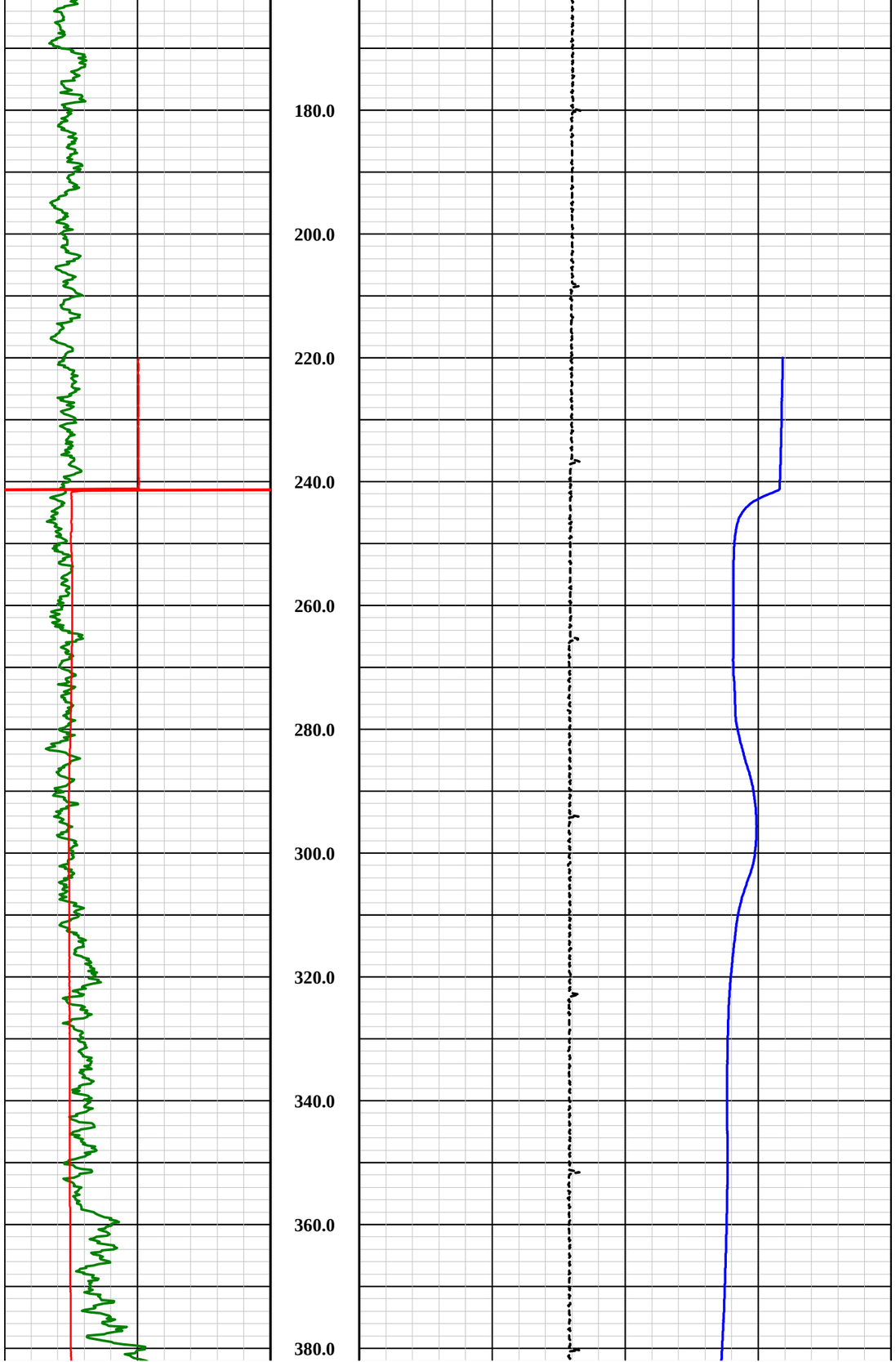
COMMENTS:

E-Log Calibration Range: N/A **Calibration Points:** N/A

Disclaimer:

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretations or recommendations and shall not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our employees or agents. These interpretations are also subject to our general terms and conditions set out in our current Service Invoice.

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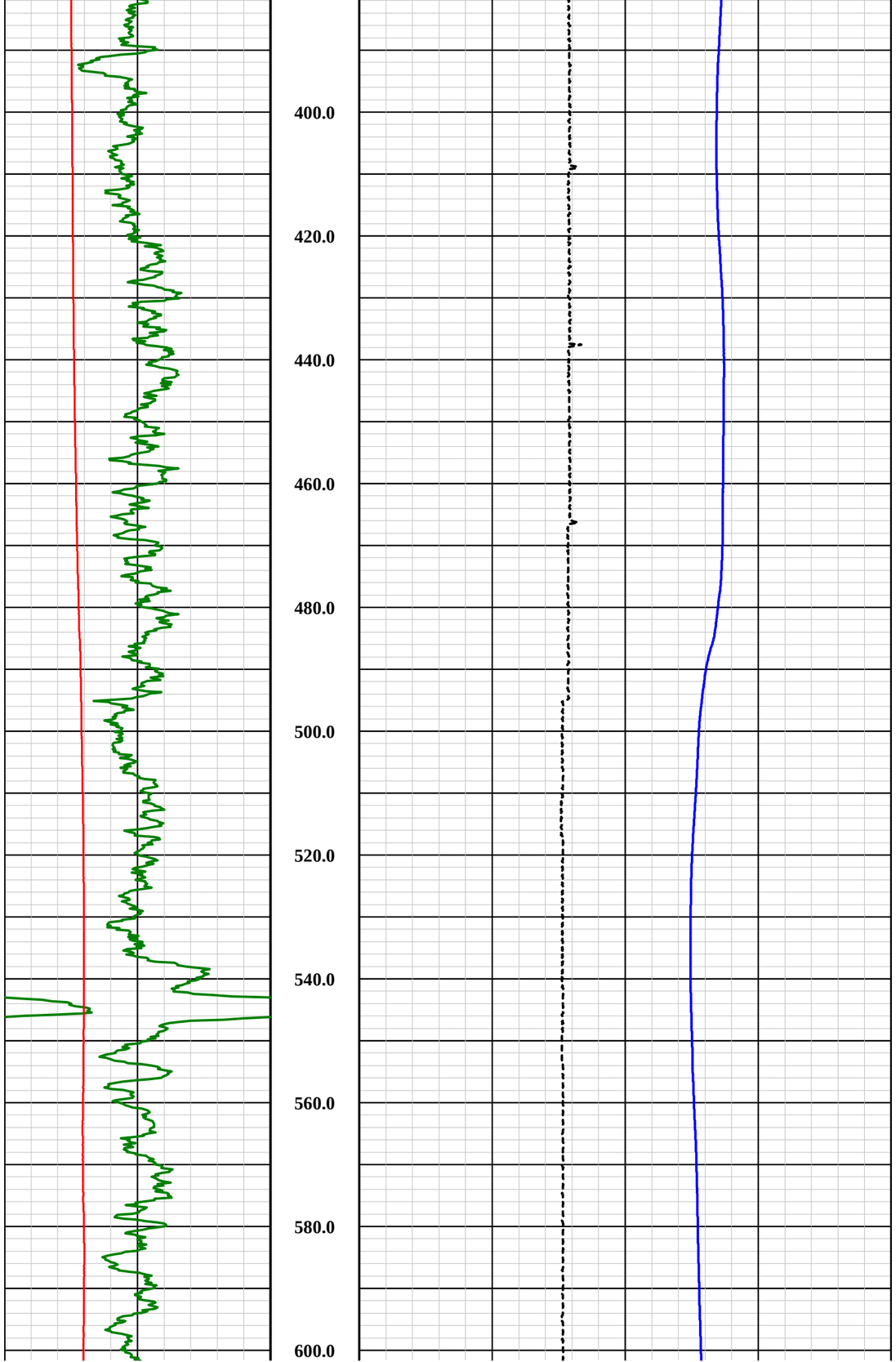
380.0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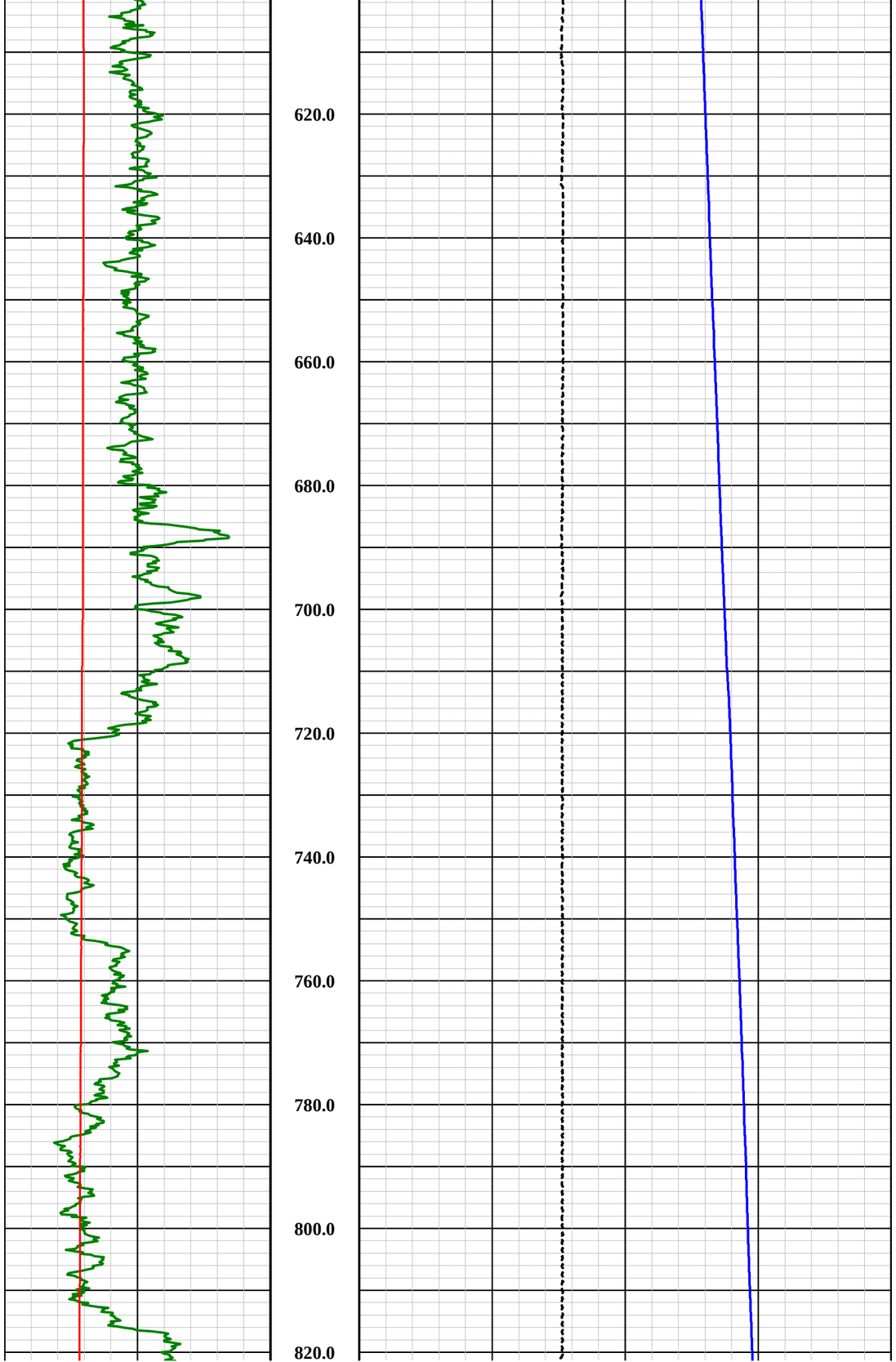
560.0
580.0
600.0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640.0
660.0
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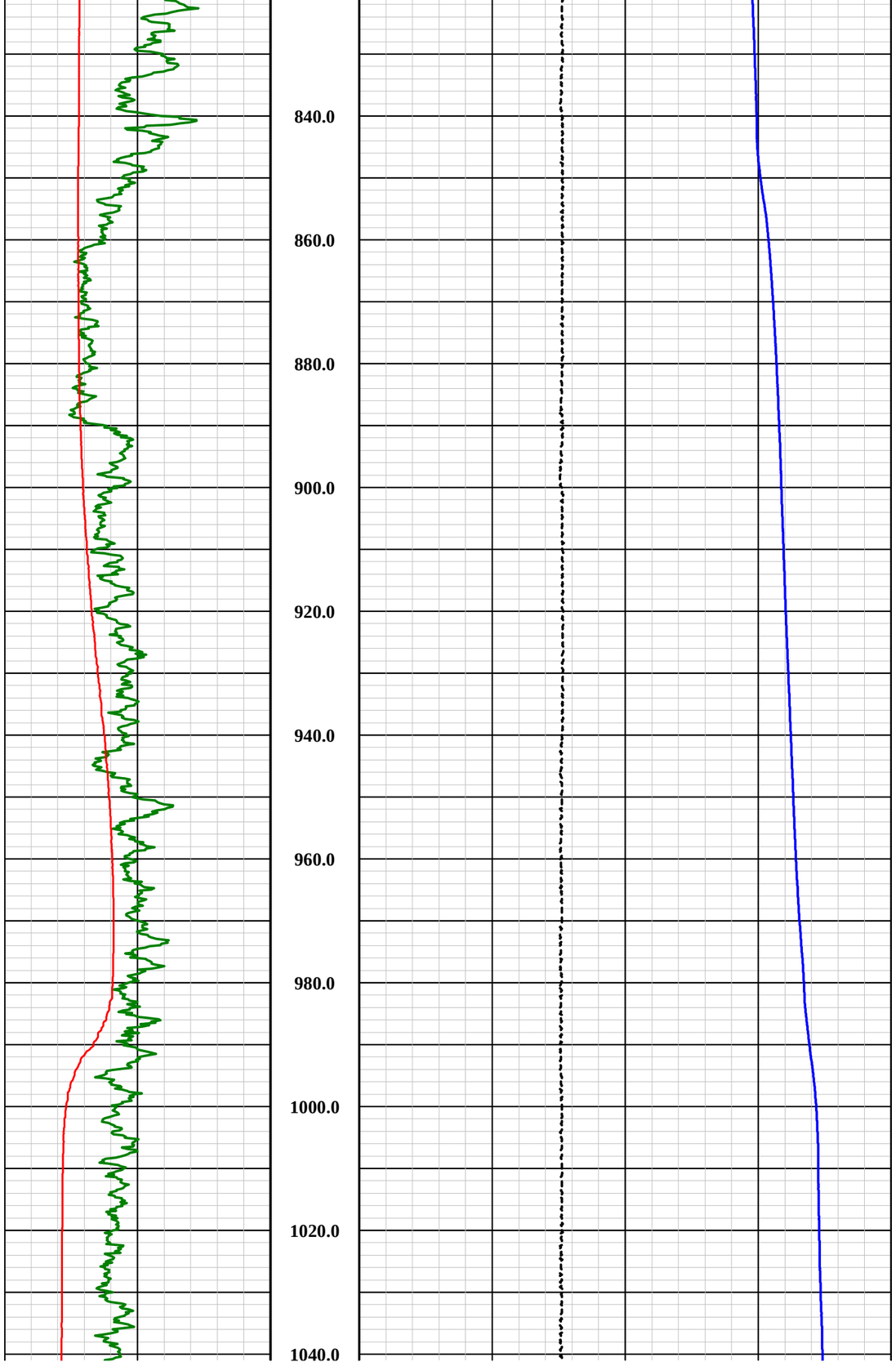
700.0
720.0
740.0
760.0
780.0
800.0
820.0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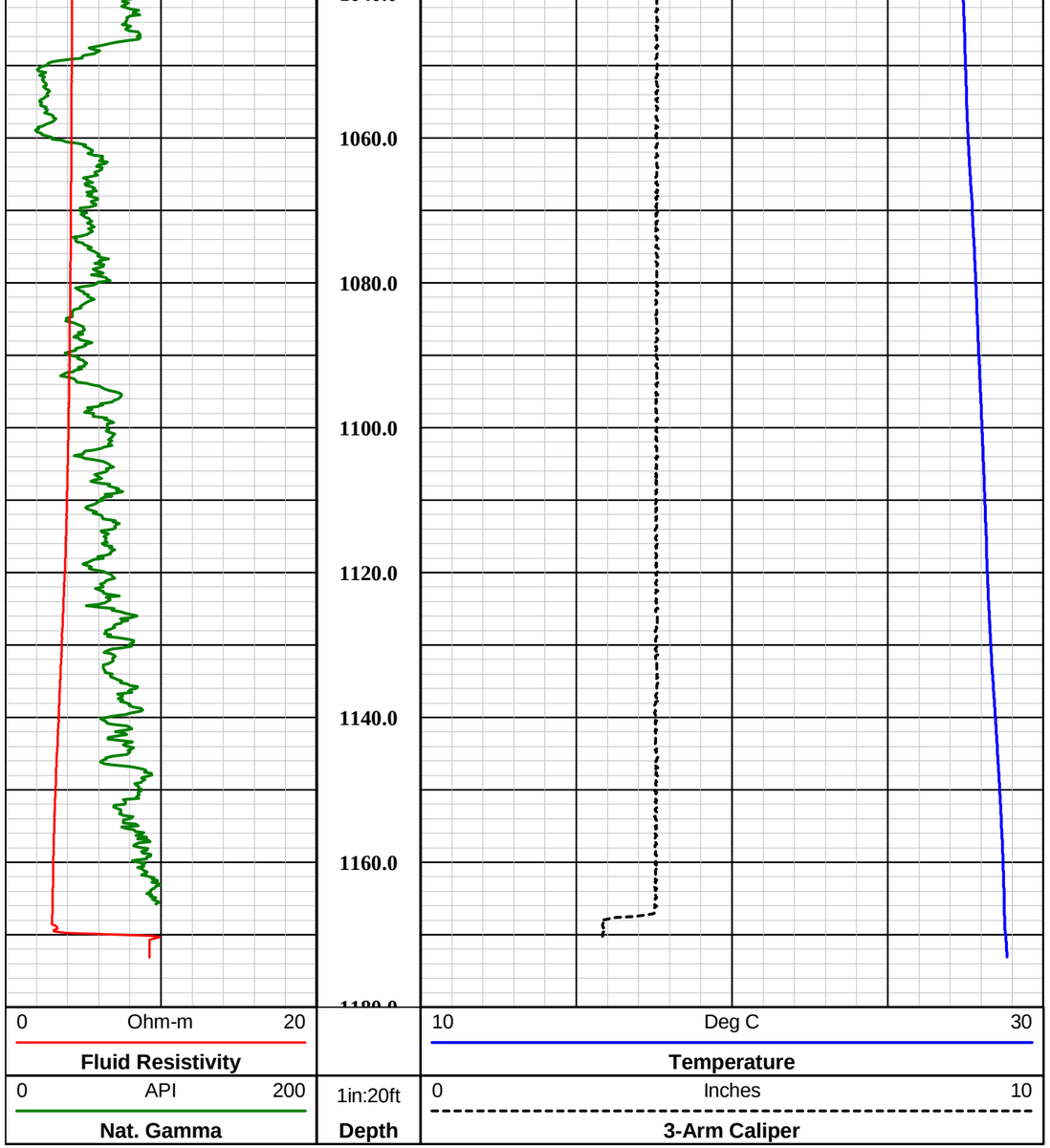
860.0
880.0
900.0
920.0
940.0
960.0
980.0
1000.0
1020.0
1040.0



MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.

Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)

Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC

borehole geophysics & video services

Company	FLORENCE COPPER
Well	WB-02
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final **GCT Summary**

APPENDIX F

Cement Bond Log Summary

WELL WB-02 — Geophysical Log Summary

COMPANY:	FLORENCE COPPER COMPANY	Logging Engineer:	VARIOUS
FIELD:	FLORENCE COPPER SITE	Date Logged:	VARIOUS
WELL ID:	WB-02	Processed By:	K.M / B.C.
COUNTY:	PINAL STATE: ARIZONA	Date Processed:	07-17-18

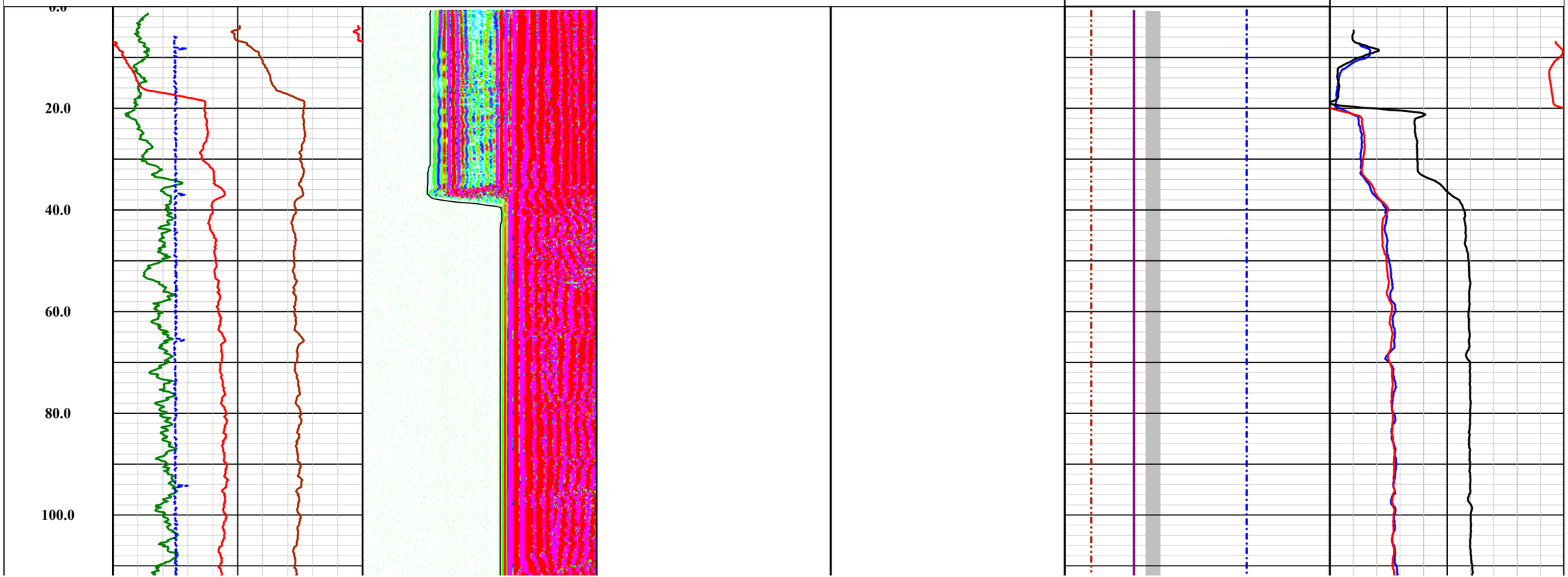
Southwest Exploration Services, LLC
borehole geophysics & video services

HALEY ALDRICH

WB-02 Sonic CBL with Density Summary

Depth
1in:20ft

Nat. Gamma	RX1 - VDL (60mm)	RX1 - VDL	RX4 - VDL	Velocity Analysis	Near Density
Cased 4-19-18	Open 4-7-18	Cased 4-19-18	Cased 4-19-18	Cased 4-19-18	Cased 4-19-18
0 API 200	100 uSec 1000	100 uSec 1020	100 uSec 1020	40 us/ft 220	1 g/cc 4
3-Arm Caliper	**RX1 - TT (60mm)**	**RX1 - TT**	**RX4 - TT**	**P-Wave Slow**	**Far Density**
Cased 4-19-18	Open 4-7-18	Cased 4-19-18	Cased 4-19-18	Cased 4-19-18	Cased 4-19-18
3 Inches 7	100 uSec 1000	100 uSec 1020	100 uSec 1020	40 us/ft 220	1 g/cc 4
Comp Density				**Steel**	**4 Pi Density (Dry)**
Cased 4-19-18				40 us/ft 220	Cased 4-19-18
0 g/cc 4				**FRP**	2000 CPS 0
Compensation				40 us/ft 220	**4 Pi Density (Wet)**
Cased 4-19-18				**PVC**	Cased 4-19-18
-3 g/cc 1				40 us/ft 220	300 CPS 0
				Cement	



120.0

140.0

160.0

180.0

200.0

220.0

240.0

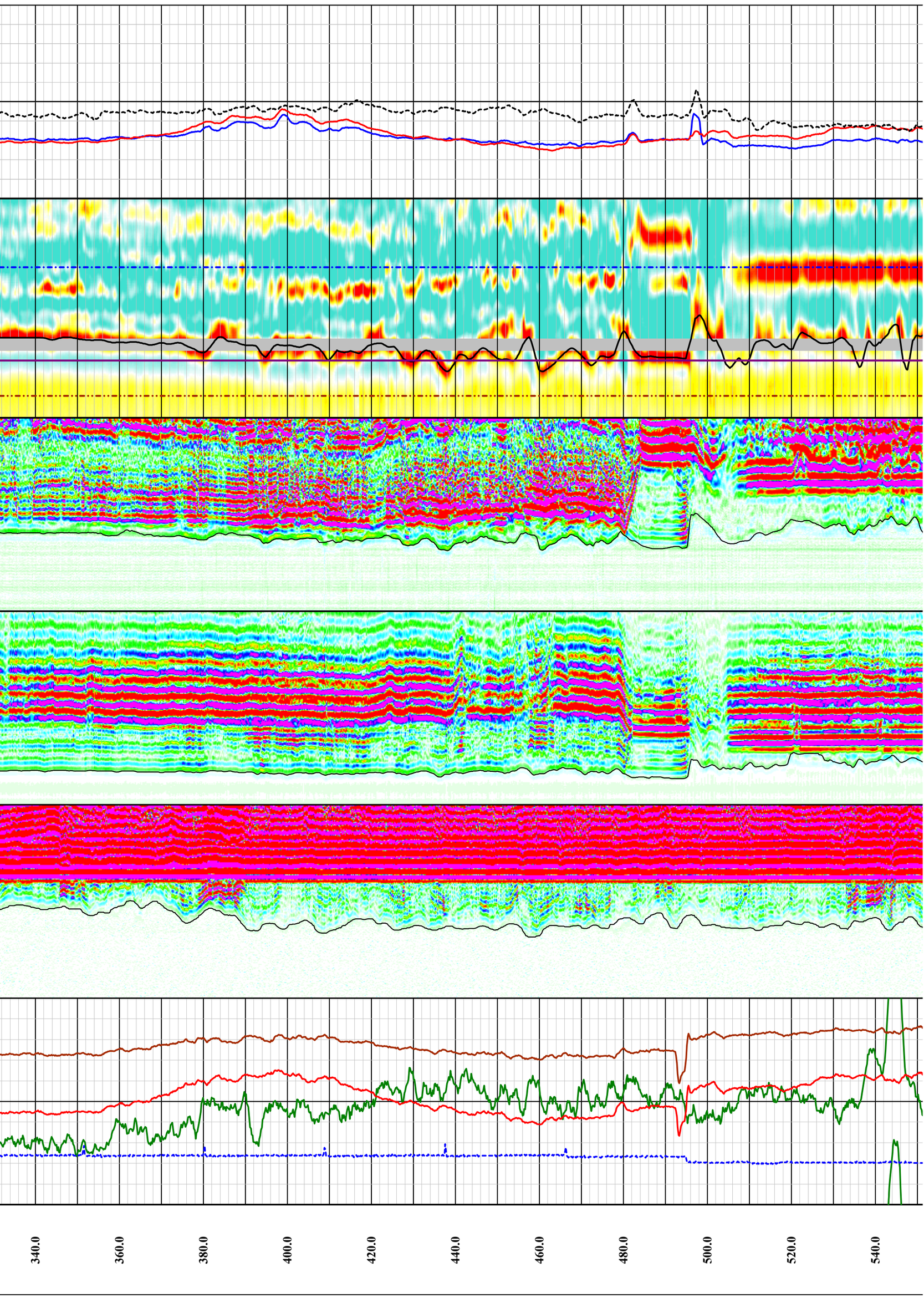
260.0

280.0

300.0

320.0

Fluid Level ~240.6'


340.0
360.0
380.0
400.0
420.0
440.0
460.0
480.0
500.0
520.0
540.0

560.0

580.0

600.0

620.0

640.0

660.0

680.0

700.0

720.0

740.0

760.0

780.0

800.0

820.0

840.0

860.0

880.0

900.0

920.0

940.0

960.0

980.0

1000.0

1020.0

1040.0

1060.0

1080.0

1100.0

1120.0

1140.0

1160.0

1180.0

1200.0

Version 4-20-18, RECC

					Cement	
					40 us/ft 220 PVC	300 CPS 0 Cased 4-19-18 4 Pi Density (Wet)
	-3 g/cc 1 Cased 4-19-18 Compensation				40 us/ft 220 FRP	2000 CPS 0 Cased 4-19-18 4 Pi Density (Dry)
	0 g/cc 4 Cased 4-19-18 Comp Density				40 us/ft 220 Steel	
	3 Inches 7 Cased 4-19-18 3-Arm Caliper	100 uSec 1000 Open 4-7-18 RX1 - TT (60mm)	100 uSec 1020 Cased 4-19-18 RX1 - TT	100 uSec 1020 Cased 4-19-18 RX4 - TT	40 us/ft 220 Cased 4-19-18 P-Wave Slow	1 g/cc 4 Cased 4-19-18 Far Density
	0 API 200 Cased 4-19-18 Nat. Gamma	100 uSec 1000 Open 4-7-18 RX1 - VDL (60mm)	100 uSec 1020 Cased 4-19-18 RX1 - VDL	100 uSec 1020 Cased 4-19-18 RX4 - VDL	40 us/ft 220 Cased 4-19-18 Velocity Analysis	1 g/cc 4 Cased 4-19-18 Near Density
1in:20ft Depth	WB-02 Sonic CBL with Density Summary					

APPENDIX G

SAPT Documentation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
STANDARD ANNULAR PRESSURE TEST

Operator FLORENCE COPPER, INC
Address 1575 W. HUNT HWY
FLORENCE, AZ 85132
Well Name WB-02

State Permit No. P-101704
USEPA Permit No. R9UIC-AZ3-FY11-1
Date of Test 4/20/2018
Well Type ENV-MONITORING- Class III

LOCATION INFORMATION SW Quarter of the NE Quarter of the SW Quarter of Section 28; Range 9E; Township 4S; County PINAL;

Company Representative IAN REAM; Field Inspector LAUREN CANDREVA;

Type of Pressure Gauge Pressure transducer with data logger inch face; 300 psi full scale; 0.001 psi increments;

New Gauge? Yes ☑ No ☐ If no, date of calibration ____ Calibration certification submitted? Yes ☐ No ☑

TEST RESULTS
Readings must be taken at least every 10 minutes for a minimum of 30 minutes for Class II, III and V wells and 60 minutes for Class I wells.
For Class II wells, annulus pressue should be at least 300 psig. For Class I wells, annulus pressure should be the greater of 300 psig or 100 psi above maximum permitted injection pressure.
Original chart recordings must be submitted with this form.

5-year or annual test on time? Yes ☐ No ☑
2-year test for TA'd wells on time? Yes ☐ No ☑
After rework? Yes ☐ No ☑
Newly permitted well? Yes ☑ No ☐

Pressure (in psig)

Time	Annulus	Tubing
11:20	168.05	same
11:30	168.81	same
11:40	169.82	same
11:50	170.74	same

Casing size 4" - NOMINAL
Tubing size 2"
Packer type INLFATABLE PACKER
Packer set @ 6.69(top), 484.73(bottom)
Top of Permitted Injection Zone 425 feet
Is packer 100 ft or less above top of Injection Zone ? Yes ☑ No ☐
If not, please submit a justification.
Fluid return (gal.) 0.45
Comments: Two tests conducted to confirm results - data for both tests included in attached chart and table

Test Pressures: Max. Allowable Pressure Change: Initial test pressure x 0.05 8.40 psi
Test Period Pressure change 2.69 psi

Test Passed ☑ Test Failed ☐

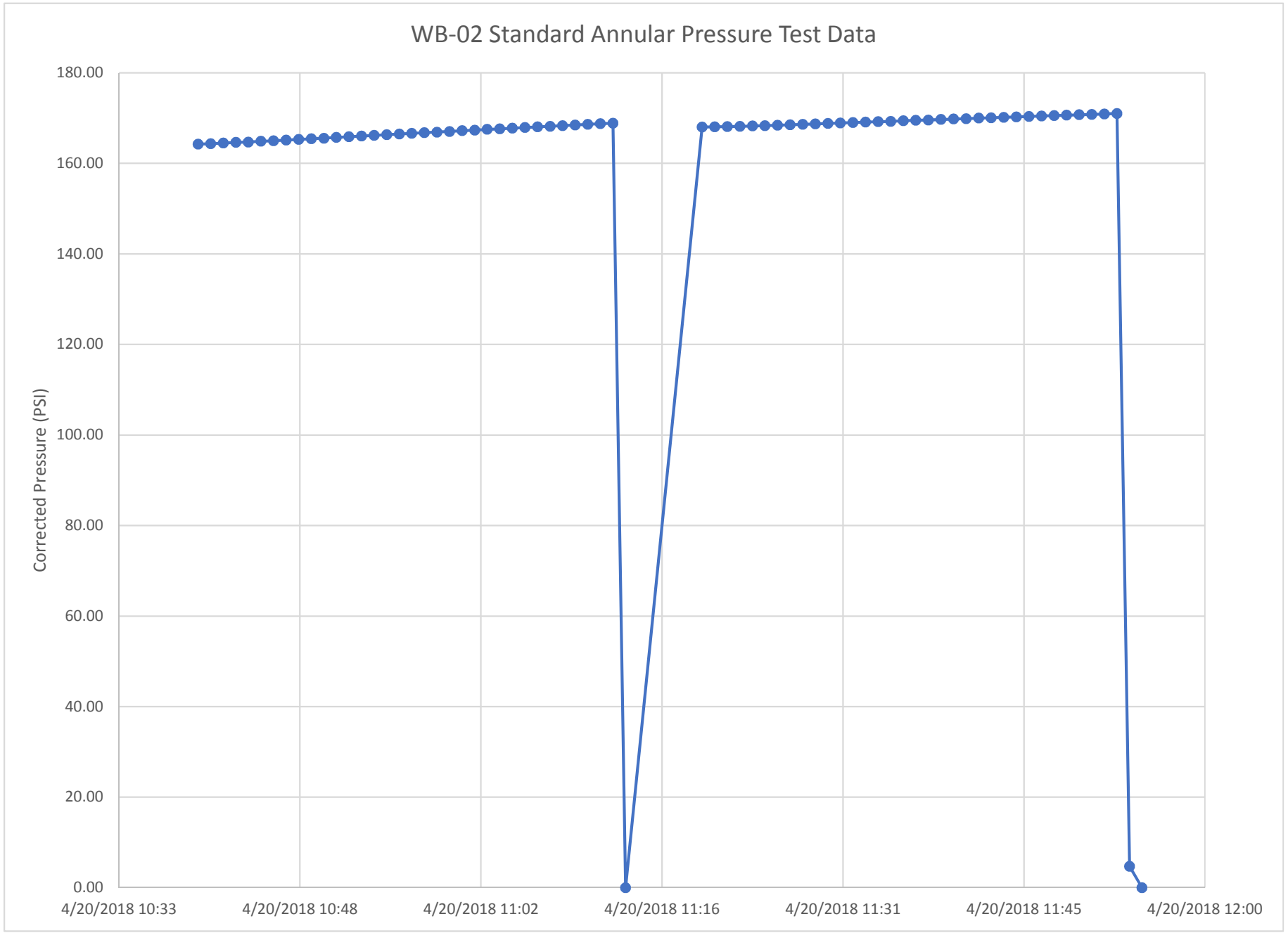
If failed test, well must be shut in, no injection can occur, and USEPA must be contacted within 24 hours. Corrective action needs to occur, the well retested, and written authorization received before injection can recommence.

I certify under penalty of law that this document and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (See 40 CFR 144.32(d))

Ian Ream
Printed Name of Company Representative

Signature of Company Representative

9-14-2018
Date


WB-02 Standard Annular Pressure Test Data
Corrected Pressure (PSI)
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
4/20/2018 10:33
4/20/2018 10:48
4/20/2018 11:02
4/20/2018 11:16
4/20/2018 11:31
4/20/2018 11:45
4/20/2018 12:00

Well WB-02 SAPT Data		
Tranducer Serial Number:	519257	
Tranducer Model:	Level TROLL 400 non-vented 300 psi	
Date and Time	Pressure (PSI)	Corrected Presssure (PSI) (Sensor pressure - barometric pressure)
4/20/2018 10:39	178.22	164.27
4/20/2018 10:40	178.307	164.36
4/20/2018 10:41	178.458	164.51
4/20/2018 10:42	178.596	164.64
4/20/2018 10:43	178.668	164.72
4/20/2018 10:44	178.826	164.87
4/20/2018 10:45	178.961	165.01
4/20/2018 10:46	179.092	165.14
4/20/2018 10:47	179.245	165.29
4/20/2018 10:48	179.399	165.45
4/20/2018 10:49	179.516	165.56
4/20/2018 10:50	179.683	165.73
4/20/2018 10:51	179.864	165.91
4/20/2018 10:52	179.976	166.02
4/20/2018 10:53	180.129	166.18
4/20/2018 10:54	180.312	166.36
4/20/2018 10:55	180.443	166.49
4/20/2018 10:56	180.57	166.62
4/20/2018 10:57	180.713	166.76
4/20/2018 10:58	180.854	166.90
4/20/2018 10:59	181.003	167.05
4/20/2018 11:00	181.193	167.24
4/20/2018 11:01	181.305	167.35
4/20/2018 11:02	181.464	167.51
4/20/2018 11:03	181.572	167.62
4/20/2018 11:04	181.729	167.78
4/20/2018 11:05	181.881	167.93
4/20/2018 11:06	182.021	168.07
4/20/2018 11:07	182.123	168.17
4/20/2018 11:08	182.256	168.30
4/20/2018 11:09	182.41	168.46
4/20/2018 11:10	182.576	168.62
4/20/2018 11:11	182.712	168.76
4/20/2018 11:12	182.826	168.87
4/20/2018 11:13	13.952	0.00
4/20/2018 11:20	181.999	168.05
4/20/2018 11:21	182.007	168.06
4/20/2018 11:22	182.074	168.12
4/20/2018 11:23	182.152	168.20
4/20/2018 11:24	182.237	168.29

Well WB-02 SAPT Data		
Tranducer Serial Number:	519257	
Tranducer Model:	Level TROLL 400 non-vented 300 psi	
Date and Time	Pressure (PSI)	Corrected Presssure (PSI) (Sensor pressure - barometric pressure)
4/20/2018 11:25	182.294	168.34
4/20/2018 11:26	182.388	168.44
4/20/2018 11:27	182.474	168.52
4/20/2018 11:28	182.589	168.64
4/20/2018 11:29	182.686	168.73
4/20/2018 11:30	182.76	168.81
4/20/2018 11:31	182.862	168.91
4/20/2018 11:32	182.974	169.02
4/20/2018 11:33	183.052	169.10
4/20/2018 11:34	183.16	169.21
4/20/2018 11:35	183.23	169.28
4/20/2018 11:36	183.366	169.41
4/20/2018 11:37	183.482	169.53
4/20/2018 11:38	183.519	169.57
4/20/2018 11:39	183.668	169.72
4/20/2018 11:40	183.77	169.82
4/20/2018 11:41	183.837	169.89
4/20/2018 11:42	183.946	169.99
4/20/2018 11:43	184.038	170.09
4/20/2018 11:44	184.12	170.17
4/20/2018 11:45	184.23	170.28
4/20/2018 11:46	184.292	170.34
4/20/2018 11:47	184.43	170.48
4/20/2018 11:48	184.517	170.57
4/20/2018 11:49	184.608	170.66
4/20/2018 11:50	184.691	170.74
4/20/2018 11:51	184.76	170.81
4/20/2018 11:52	184.854	170.90
4/20/2018 11:53	184.967	171.02
4/20/2018 11:54	18.649	4.70
4/20/2018 11:55	13.955	0.00

APPENDIX H

Well Development Field Forms

Rig 2

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI-PTF	Project No.: 129687-007
Well No.: WB-02	Date: 4-14-18
Location: FLORENCE, AZ	Measuring Point: DISCHARGE
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 5
Pump Type/Setting (ft bls): AIRLIFT VARIOUS	Activity: AIRLIFT
How Q Measured:	H&A Personnel: KF, TS, SK

Time	Discharge (gpm)	Pumping Water Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
1550	-	START AIRLIFT							
1553	~3	422	-	0.1	8.82	1993	30.36	OR.	Brown, turbid.
1610	~1	422	-	0.1	9.25	1967	28.56	OR.	SAA.
1625	~1	422	-	<0.1	9.26	1949	28.13	OR.	SAA
1640	~1	422	-	<0.1	9.48	1937	27.53	OR.	SAA
1710	~1	422	-	<0.1	9.39	1913	26.94	OR.	SAA
1740	~1	422	-	<0.1	9.49	1829	25.35	OR	SAA
~1745									STOP AIRLIFT
1845	~9	Lvl 9							Start Airlift
1915	~9	Lvl 9	-	0.1	9.12	14960	21.49	OR	Brown, turbid
2015	~9	Lvl 9	-	<0.1	8.95	1390	20.30	OR	Brown, turbid
2115	~9	Lvl 9	-	<0.1	8.95	1375	20.23	OR	Brown, turbid
2215	~9	Lvl 9	-		8.97	1364	20.11	517	light brown/Cloudy
2217									Stop Airlift
0030		~~800~~							Start Airlift
0045	~9	800	-	<0.1	8.71	1348	19.33	OR	light brown, turbid
0145	~9	800	-	<0.1	9.02	1327	19.03	762	Cloudy
0245	~9	860	-	<0.1	9.18	1308	18.77	416	Cloudy
0515	~9	1000							Start Airlift
0645		Stop airlift							
0715		airlift ~~start~~							
0735	~10	1000	-	<0.1	8.65	1815	19.82	516	white, cloudy, mud
0850	~10	1000	-	<0.1	~~8.62~~	~~297~~	~~2.13+1573~~	266	white, cloudy
0940	~10	1000	-	<0.1	8.14	15841	24.17	202	SAA
0945		Stop airlift							
1105		1167	Start airlift						
1115	~10	1167	-	30.1	7.83	17608	26.03	OR	brown, muddy
1150	~10	1167	-	<0.1	8.95	1635	25.55	376	light brown, cloudy

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI - PTF	Project No.: 129687-007
Well No.: MW-02	Date: 4/15/18 - 4-16-18
Location: Florence, AZ	Measuring Point: discharge
Total Depth of Well (ft bls): ~~1200~~ 1175	Screen Interval (ft bls): 500 - 1175
Pump Type/Setting (ft bls): Various	Activity: air-lifting / PUMP DEVELOPMENT
How Q Measured: ~~cont.~~ Stopwatch	H&A Personnel: S. Haley

Time	Discharge (gpm)	Pumping Water Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
1235	~10	1167	—	<0.1	8.05	1639	25.58	240	light brown/cloudy
1310	~10	1167	—	<0.1	7.98	1641	25.77	221	clear to cloudy
1350		Air lift off							
1420		1175	Air lift on						
1415	~10	1175	—	<0.1	7.50	1727	28.44	235	light brown, cloudy
1515	~10	1175	—	<0.1	7.52	1646	26.18	170	SAA
1550	~10	1175	—	<0.1	8.00	1596	24.51	125	SAA
1640	~10	1175	—	<0.1	7.98	1574	23.85	96.6	SAA
1740	~10	1175	—	<0.1	8.02	1547	23.42	112	SAA
1840	~10	1175	—	0	8.09	1522	22.98	91.2	SAA
1940	~10	1175	—	0	8.03	1504	22.37	75.4	cloudy
2040	~10	1175	—	0	7.99	1489	21.55	69.9	cloudy
2140	~10	1175	—	0	8.09	1470	20.94	48.6	cloudy
2145									Stop Airlift
4-16-18 1330	0	231	START PUMP DEVELOPMENT @					1100	Ft
1340	12	247.7	-	0	8.53	14326	25.51	OR	1683200
1405	13	250.3		0	7.98	9639	28.86	132	1683506
1435	13	250.4	—	0	7.73	6906	26.16	110	1683800 Cl_2 < 4.4 mg/L
1600	13	250.8	—	0	7.37	2426	25.24	36.4	1684900 FREE Cl_2 < 4.4 mg/L
1700	13	251.8	—	0	7.39	1940	24.44	36.1	1685900 FREE Cl_2 = 0.24 mg/L
1900	13	251.9	-	0	7.62	1688	24.14	50.5	Free Cl_2 = 0
2130	13	251.3	—	0	7.72	1622	23.51	43.1	
4-17-18 0000	13	251.9	—	0	7.77	1539	22.37	78.5	Slightly cloudy
0100	13	252.5	—	0	7.75	1520	22.21	52.8	SAA
0330	13	253.9	—	0	7.84	1518	21.60	27.5	clear
0530	13	254.3	—	0	7.85	1498	21.24	29.0	clear
800	13	255.0	—	0	7.79	1550	23.92	21.9	1696400
940	13	255.1	—	0	7.75	1555	23.76	23.9	1696900

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687-007
Well No.: WB-02	Date: 4-17-18
Location: FLORENCE, AZ	Measuring Point: TOC
Total Depth of Well (ft bls): 1175	Screen Interval (ft bls):
Pump Type/Setting (ft bls): GRUNDFOS 1100 / 550	Activity: PUMP Development
How Q Measured: TOTALIZER	H&A Personnel: CBRUSH

Time	Discharge (gpm)	Pumping Water Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
1000	13	255.1	—	0	7.67	1569	24.28	21.7	1697900
1115	13	254.8	—	0	7.68	1583	24.66	21.6	1698600
1215	13	254.3	—	0	7.66	1574	24.50	19.7	1699300
1400	13	254.4	—	0	7.67	1580	24.61	18.0	1700500
1445	13	254.5	—	0	7.69	1571	24.62	17.7	
1455	—	PUMP OFF							
1730	—	PUMP ON @ 550 gpm							
1830	13	—	—	0	7.76	1527	23.08	16.3	Water level indicator has been
1930	13	—	—	0	7.69	1565	22.71	15.5	removed from well
2030	13	—	—	0	7.76	1489	22.30	14.0	
2130	13	—	—	0	7.82	1493	21.62	12.7	
2230	13	—	—	0	7.89	1478	21.01	13.0	Clear
4-18 0200	13	—	—	0	8.00	1458	20.69	12.0	Clear Free Cl2 = 0.44
0655	13	250.1	—	0	8.11	1524	22.32	7.30	1711300
0800	13	249.8	—	0	7.82	1536	23.14	6.76	1712100 Free cl2 = 0.0
0830	13	249.3	—	0	7.76	1532	23.49	6.72	1712400
0900	13	249.5	—	0	7.71	1541	23.50	6.15	1712800
0903	—	PUMP OFF FOR SURVEY							
1027	—	PUMP ON @ 550 gpm							
1030	13	247.3	—	0	7.91	1599	24.65	109	1712900
1045	13	248.2	—	0	7.83	1557	23.99	9.09	1713150
1046	—	PUMP OFF FOR SURVEY							
1104	—	PUMP ON							
1106	13	247.0	—	0	7.97	1561	24.43	15.6	1713290
1126	13	247.9	—	0	7.74	1569	24.65	8.03	1713450
1130	—	PUMP OFF FOR SURVEY							
1145	—	PUMP ON							
1148	13	247.1	—	0	7.87	1575	24.69	16.0	1713530

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687-007
Well No.: WB-02	Date: 4-18-18
Location: FLORENCE, AZ	Measuring Point: SAMPLE PORT (+2.8' TOC)
Total Depth of Well (ft bls): 1175	Screen Interval (ft bls):
Pump Type/Setting (ft bls): GRUNDFOS / 550'	Activity: PUMP DEVELOPMENT
How Q Measured: TOTALIZER	H&A Personnel: C. GIUSTI

Time	Discharge (gpm)	Pumping Water Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (μmhos/cm)	Temp. °C	Turbidity NTU	Comments
1200	13	247.7	—	0	7.79	1572	24.61	9.30	1713660
1210	13	247.9	—	0	7.74	1573	24.74	13.8	1713800
1230	13	247.9	—	0	7.69	1576	24.74	8.39	1714040
1231	—	PUMP	OFF	FOR		SURGE	—	—	—
1240	—	—	PUMP	ON	—	—	—	—	—
1243	13	246.9	—	0	7.84	1567	24.6	7.97	1714070
1335	13	248.1	—	0	7.94	1593	24.92	7.96	1714700 FREE CL_2 = 0.0
1630	13	249.4	—	0	7.64	1484	24.81	8.24	1716800
1648	—	PUMP OFF		END	DEVELOP	MENT	—	—	—

Comments: 1335 – ~~1618~~ 1630 WAS SPENT COLLECTING WB-02 SAMPLE

HALEY ALDRICH

APPENDIX I

Well Video Log and Gyroscopic Survey Reports

Southwest Exploration Services, LLC

borehole geophysics & video services

Southwest Exploration Services, LLC

25811 S. Arizona Avenue Chandler, AZ. 85248

Phone: (480) 926-4558 Fax: (480) 926-4579 Web: www.swexp.com

Client: Florence Copper | Survey Date: April 19, 2018

Address: 1575 W. Hunt Hwy | Invoice: | Run: 1

City: Florence | State: AZ | Zip: 85132 | **Well Name:** WB-02

Requested By: H&A | P.O.: | **Well Owner:** Florence Copper

Copy To: | Camera: CCV S.S. Color Camera - Ring of Lights

Purpose: General Inspection | Zero Datum: Top of Casing

Location: | Depth: | Vehicle: 310

Field: | Type Perfs: Horizontal Slots

1st Csg.O.D. 4 In. | Csg Weight: | From: 0 ft. | To: 500 ft. | 2nd Csg.O.D. 4 In. | Csg Weight: | From: 500 ft. | To: 1175 ft.

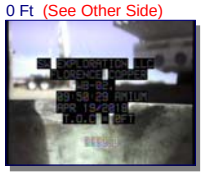
Standing Water Level: 242.5 ft. | Pumping Water Level: | Pump Depth: | O.D.Ref.: Measured | Casing Buildup: None

Operator: E. Beam | Lat.: | Long.: | Sec: | Twp: | Rge:

Other Information:

Wellbore Snapshots

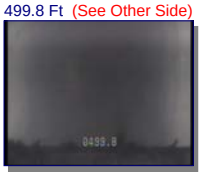
0 Ft (See Other Side)



155.8 Ft (See Other Side)

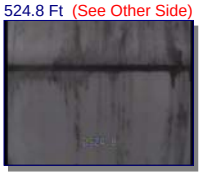
242.5 Ft (See Other Side)

499.8 Ft (See Other Side)



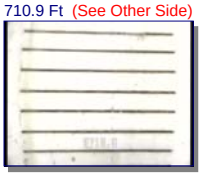
504.8 Ft (See Other Side)

524.8 Ft (See Other Side)



565.8 Ft (See Other Side)

710.9 Ft (See Other Side)



984.7 Ft (See Other Side)

1171.8 Ft (See Other Side)

True Depths: (SideScan-Feet)	WELLBORE / CASING INFORMATION
0.	Top of casing.
155.8	Fiberglass joint.
242.5	Fluid level.
499.8	Joint between steel and fiberglass.
504.8	Joint between steel and PVC.
524.8	PVC joint.
565.8	First set of perforations in PVC.
710.9	Second set of perforations in PVC. No issues seen.
984.7	Third set of perforations in PVC. No issues seen.
1,171.8	Bottom of well.

Notes:

Drift Report

Wellbore DRIFT Interpretation

PREPARED ESPECIALLY FOR

Florence Copper and Florence Copper

WB-02

Thursday - April 19, 2018

Southwest Exploration Services, LLC
borehole geophysics and video services

Southwest Exploration Services, LLC
(480) 926-4558

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

(480) 926-4558

Company: Florence Copper **Well Owner:** Florence Copper

County: Pinal **State:** Arizona **Country:** United States

Well Number: WB-02 **Survey Date:** Thursday - April 19, 2018 **Magnetic Declination:** Declination Correction Not Used

Field: Florence Copper Project **Drift Calculation Methodology:** Balanced Tangential Method

Location:

Remarks:

Witness: H&A **Vehicle No.:** 800 **Invoice No.:** **Operator:** E. BEAM **Well Depth:** 1175 Feet **Casing size:** 4 Inches

Tool: Gyro - 1422 **Lat.:** **Long.:** **Sec.:** **Twp.:** **Rge.:**

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BGR., degrees
0	0.29	293.27	0.00						
20	0.16	006.96	19.99	0.048	-0.043	1.00	1.99	0.06' (.72")	317.90
40	0.13	320.60	39.98	0.093	-0.054	0.41	1.31	0.11' (1.32")	329.90
60	0.15	041.63	59.97	0.130	-0.051	0.96	2.16	0.14' (1.68")	338.60
80	0.27	168.32	79.96	0.103	-0.024	0.84	2.97	0.11' (1.32")	346.90
100	0.29	258.19	99.96	0.046	-0.064	0.42	2.34	0.08' (.96")	306.00
120	0.27	138.43	119.95	0.000	-0.082	0.13	2.87	0.08' (.96")	270.30
140	0.19	106.58	139.94	-0.045	-0.019	0.43	0.91	0.05' (.60")	203.00
160	0.19	121.80	159.93	-0.072	0.041	0.83	0.44	0.08' (.96")	150.30
180	0.11	071.18	179.92	-0.083	0.087	0.95	1.42	0.12' (1.44")	133.60
200	0.23	099.42	199.91	-0.083	0.145	0.37	0.81	0.17' (2.04")	119.90
220	0.18	117.92	219.90	-0.104	0.212	1.00	0.53	0.24' (2.88")	116.20
240	0.18	061.63	239.89	-0.104	0.267	1.00	1.57	0.29' (3.48")	111.20
260	0.18	067.63	259.88	-0.077	0.324	0.34	0.17	0.33' (3.96")	103.40
280	0.23	079.72	279.87	-0.058	0.393	0.93	0.35	0.40' (4.80")	098.40
300	0.26	026.40	299.86	-0.010	0.453	0.78	1.49	0.45' (5.40")	091.30
320	0.25	083.23	319.85	0.036	0.517	0.53	1.58	0.52' (6.24")	086.00
340	0.29	106.86	339.84	0.026	0.609	0.00	0.68	0.61' (7.32")	087.50

True Vertical Depth: 1170.22' **Final Drift Distance:** 8.91' (106.92") **Final Drift Bearing:** 162.70°

Note: Magnetic Declination is not used because it is not a factor in the calculation of well drift or alignment. Magnetic Declination is only important if attempting to hit a target or miss another well and then it is included in the calculations.

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

WB-02

(480) 926-4558

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
360	0.30°	121.17°	359.83	-0.016	0.702	0.56	0.41	0.70' (8.40")	091.30
380	0.36°	097.22°	379.82	-0.051	0.809	0.73	0.69	0.81' (9.72")	093.60
400	0.35°	105.23°	399.81	-0.075	0.930	0.88	0.23	0.93' (11.16")	094.60
420	0.42°	135.33°	419.80	-0.143	1.040	0.20	0.86	1.05' (12.60")	097.80
440	0.42°	140.84°	439.79	-0.252	1.138	0.97	0.16	1.17' (14.04")	102.50
460	0.46°	126.71°	459.78	-0.357	1.249	0.96	0.41	1.30' (15.60")	105.90
480	0.27°	118.69°	479.77	-0.428	1.355	0.12	0.23	1.42' (17.04")	107.50
500	0.33°	110.92°	499.76	-0.471	1.450	0.81	0.22	1.52' (18.24")	108.00
520	0.38°	132.51°	519.75	-0.536	1.553	0.59	0.62	1.64' (19.68")	109.10
540	0.50°	129.51°	539.74	-0.636	1.669	0.73	0.09	1.79' (21.48")	110.90
560	0.44°	132.93°	559.73	-0.744	1.793	0.28	0.10	1.94' (23.28")	112.50
580	0.51°	135.93°	579.72	-0.860	1.911	0.77	0.09	2.10' (25.20")	114.20
600	0.67°	161.50°	599.71	-1.035	2.010	0.49	0.73	2.26' (27.12")	117.20
620	0.58°	139.95°	619.70	-1.223	2.112	0.69	0.62	2.44' (29.28")	120.10
640	0.54°	151.93°	639.69	-1.384	2.221	0.13	0.35	2.62' (31.44")	121.90
660	0.44°	171.59°	659.68	-1.543	2.277	0.83	0.57	2.75' (33.00")	124.10
680	0.45°	148.40°	679.67	-1.686	2.329	0.80	0.67	2.88' (34.56")	125.90
700	0.61°	164.08°	699.66	-1.855	2.399	0.25	0.45	3.03' (36.36")	127.70
720	0.76°	163.37°	719.65	-2.084	2.466	0.54	0.02	3.23' (38.76")	130.20
740	0.81°	163.15°	739.64	-2.346	2.545	0.24	0.01	3.46' (41.52")	132.70
760	0.72°	183.34°	759.63	-2.607	2.579	0.94	0.58	3.67' (44.04")	135.30
780	0.66°	168.60°	779.62	-2.845	2.594	0.65	0.43	3.85' (46.20")	137.60
800	0.87°	164.46°	799.61	-3.104	2.657	0.97	0.12	4.09' (49.08")	139.40
820	0.74°	169.29°	819.60	-3.377	2.722	0.06	0.14	4.34' (52.08")	141.10
840	1.16°	176.71°	839.59	-3.706	2.758	0.29	0.22	4.62' (55.44")	143.30
860	0.96°	178.84°	859.58	-4.076	2.773	0.57	0.06	4.93' (59.16")	145.80
880	0.95°	181.52°	879.57	-4.409	2.772	0.47	0.08	5.21' (62.52")	147.80
900	0.95°	167.54°	899.56	-4.737	2.803	0.42	0.40	5.50' (66.00")	149.40
920	1.01°	182.38°	919.55	-5.075	2.831	0.69	0.43	5.81' (69.72")	150.80
940	1.32°	183.15°	939.54	-5.481	2.811	0.04	0.02	6.16' (73.92")	152.80
960	1.23°	168.30°	959.53	-5.921	2.842	0.30	0.43	6.57' (78.84")	154.40
980	0.92°	200.39°	979.52	-6.282	2.830	0.98	0.92	6.89' (82.68")	155.80
1,000	0.85°	190.04°	999.52	-6.579	2.748	0.95	0.30	7.13' (85.56")	157.30

True Vertical Depth: 1170.22' **Final Drift Distance: 8.91' (106.92")** **Final Drift Bearing: 162.70°**

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

WB-02

(480) 926-4558

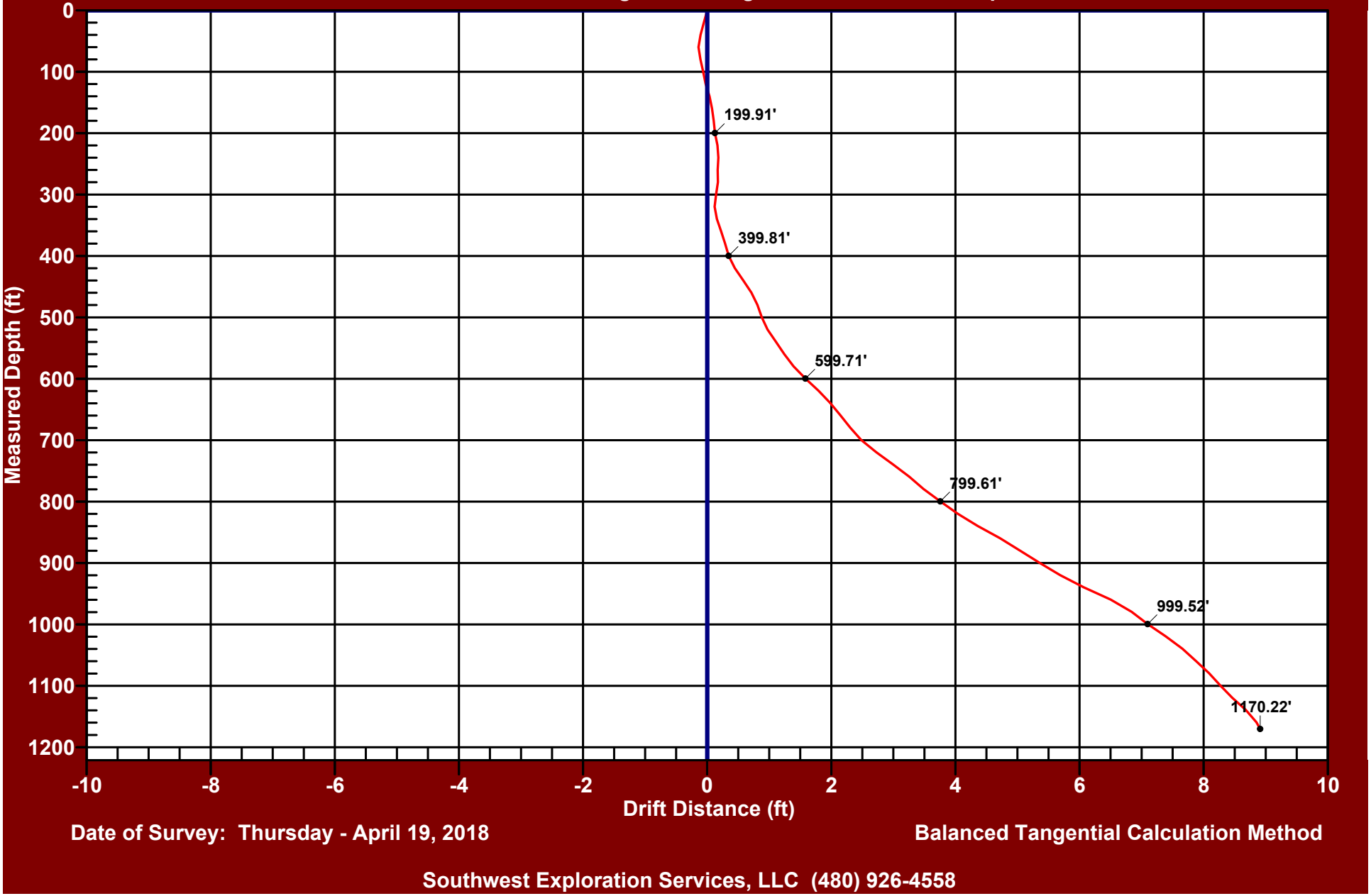
MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
1,020	0.93°	173.76°	1,019.51	-6.886	2.740	0.96	0.47	7.41' (88.92")	158.30
1,040	0.82°	205.77°	1,039.50	-7.176	2.695	0.46	0.92	7.67' (92.04")	159.40
1,060	0.74°	185.97°	1,059.49	-7.433	2.619	0.25	0.57	7.88' (94.56")	160.60
1,080	0.53°	179.84°	1,079.48	-7.654	2.606	0.92	0.18	8.09' (97.08")	161.20
1,100	0.62°	189.92°	1,099.47	-7.853	2.588	0.09	0.29	8.27' (99.24")	161.80
1,120	0.76°	203.61°	1,119.46	-8.081	2.516	0.16	0.40	8.46' (101.52")	162.70
1,140	0.66°	152.74°	1,139.45	-8.305	2.516	0.98	1.43	8.68' (104.16")	163.10
1,160	0.38°	141.19°	1,159.44	-8.459	2.610	0.54	0.33	8.85' (106.20")	162.90
1,171	0.29°	156.74°	1,170.22	-8.512	2.643	0.20	0.83	8.91' (106.92")	162.70

True Vertical Depth: 1170.22' **Final Drift Distance: 8.91' (106.92")** **Final Drift Bearing: 162.70°**

PLANE OF DRIFT VIEW - WB-02

Florence Copper
Florence Copper

Drift Distance = 8.91 Feet Drift Bearing = 162.7 Degrees True Vertical Depth = 1170.22 Feet



Date of Survey: Thursday - April 19, 2018

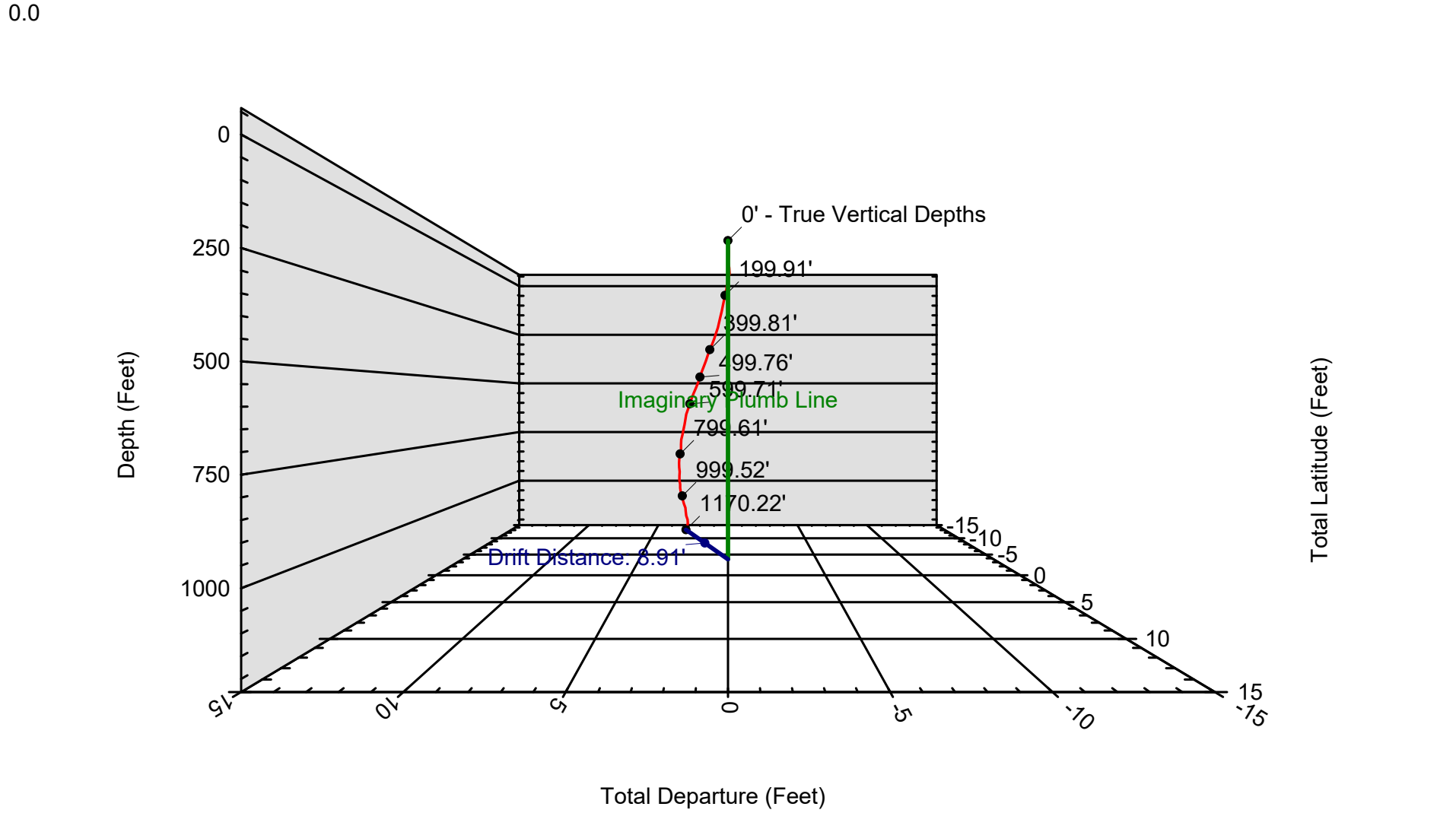
Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

3D PROJECTION VIEW - WB-02

Florence Copper
Florence Copper

Drift Distance = 8.91 Feet **Drift Bearing = 162.7 Degrees** **True Vertical Depth = 1170.22 Feet**



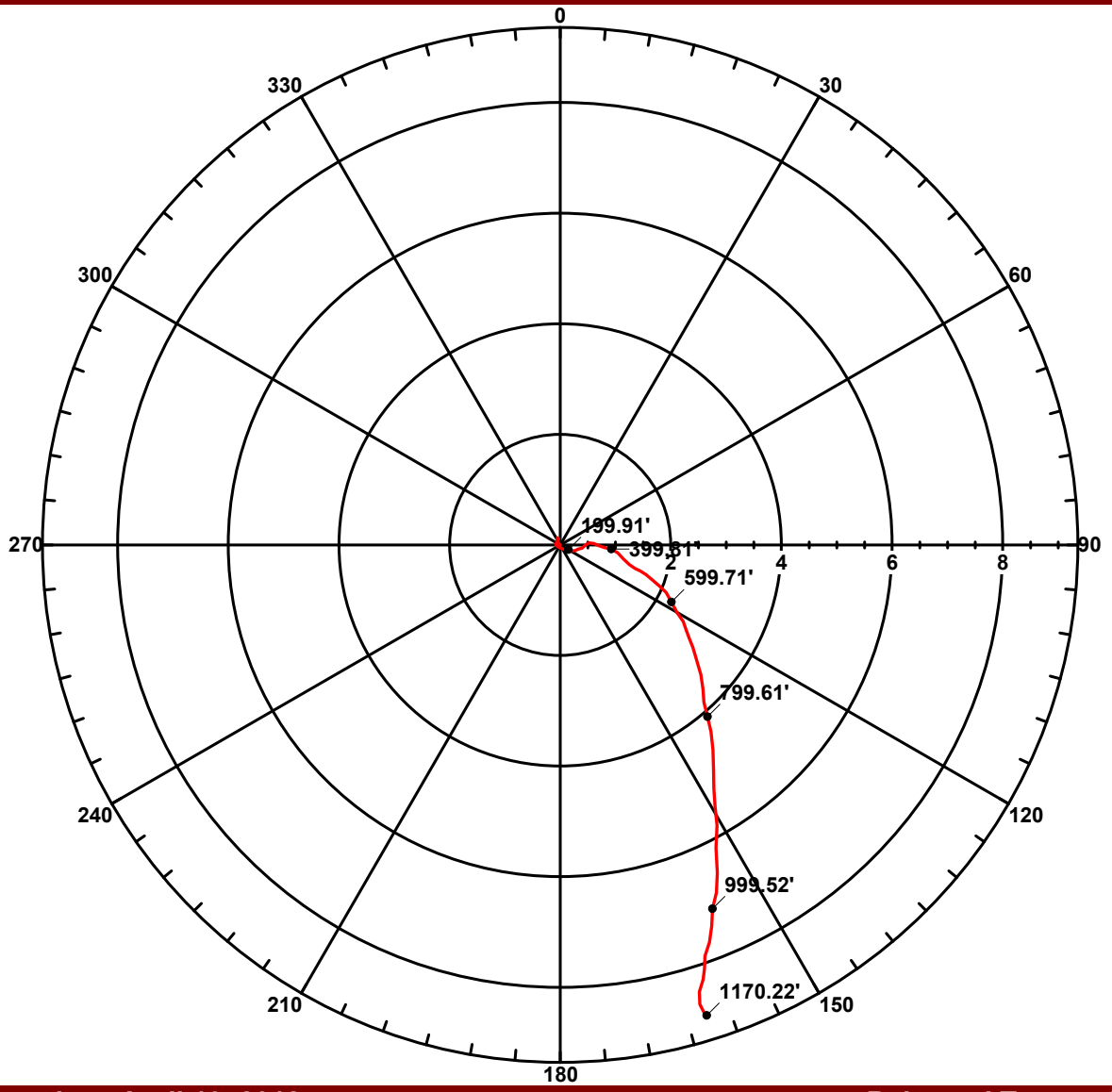
Date of Survey: Thursday - April 19, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

POLAR VIEW - WB-02

Florence Copper
Florence Copper

Drift Distance = 8.91 Feet **Drift Bearing = 162.7 Degrees** **True Vertical Depth = 1170.22 Feet**



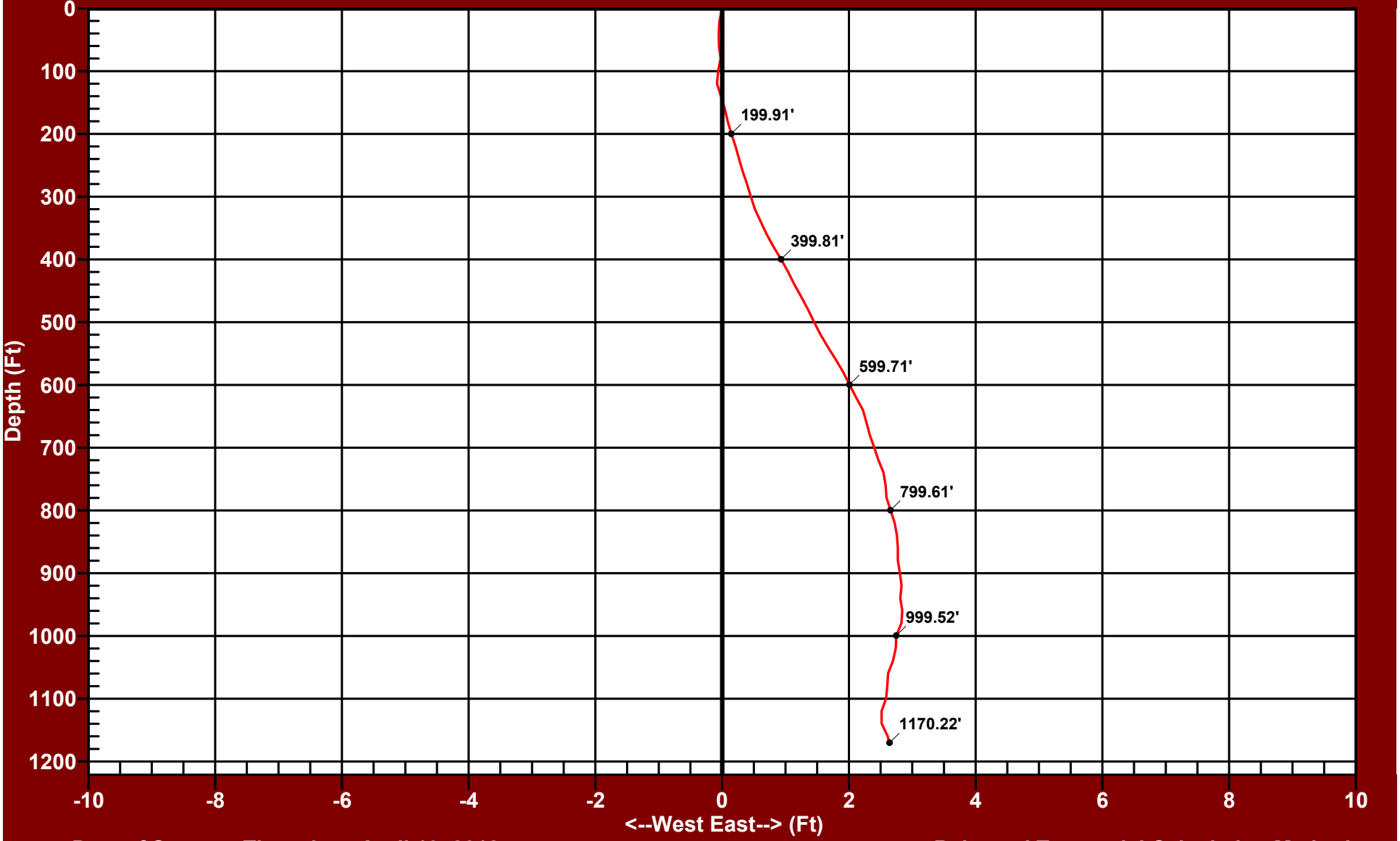
Date of Survey: Thursday - April 19, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

EASTING RECTANGULAR VIEW - WB-02

Florence Copper
Florence Copper

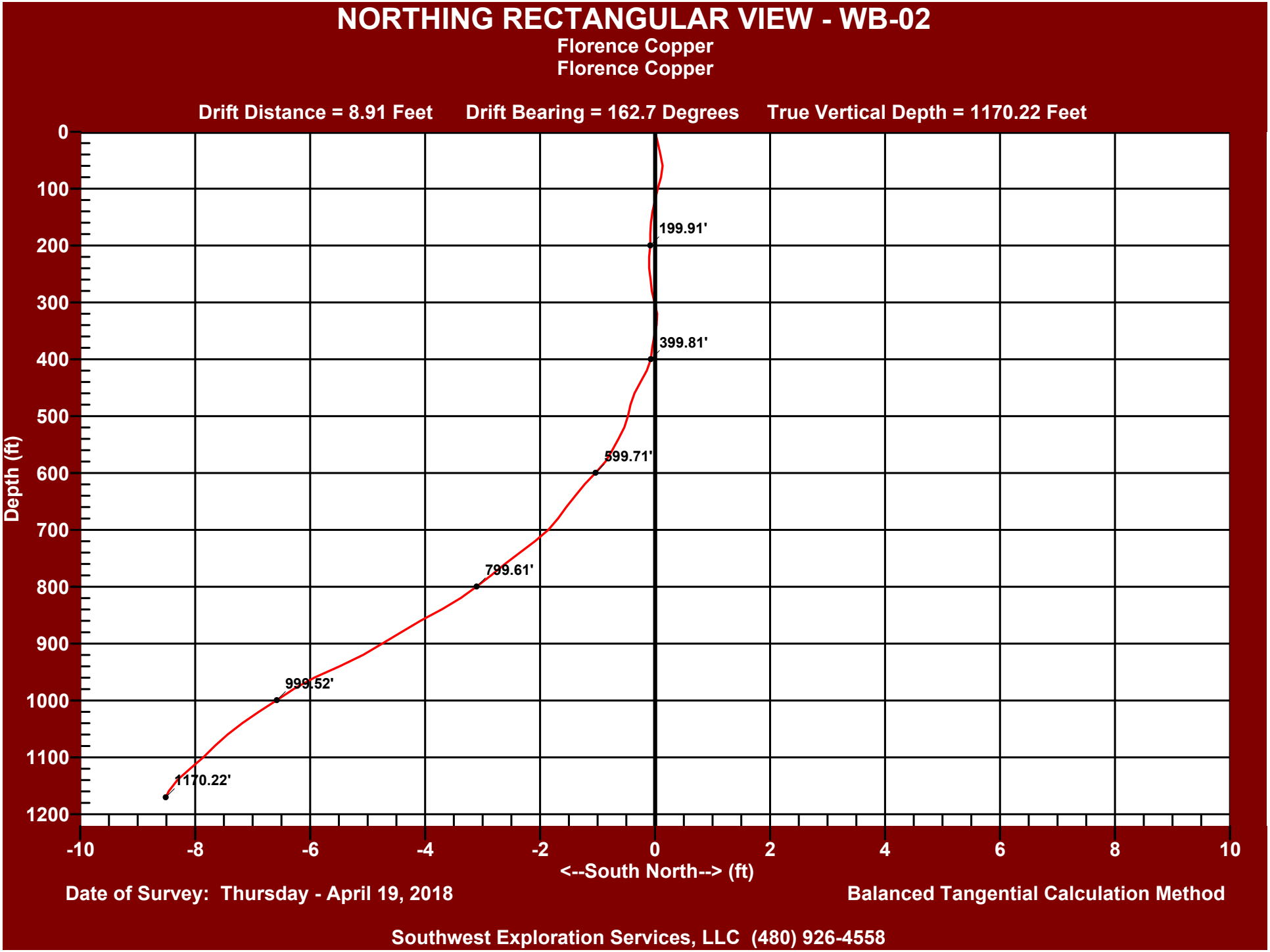
Drift Distance = 8.91 Feet Drift Bearing = 162.7 Degrees True Vertical Depth = 1170.22 Feet



Date of Survey: Thursday - April 19, 2018

Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

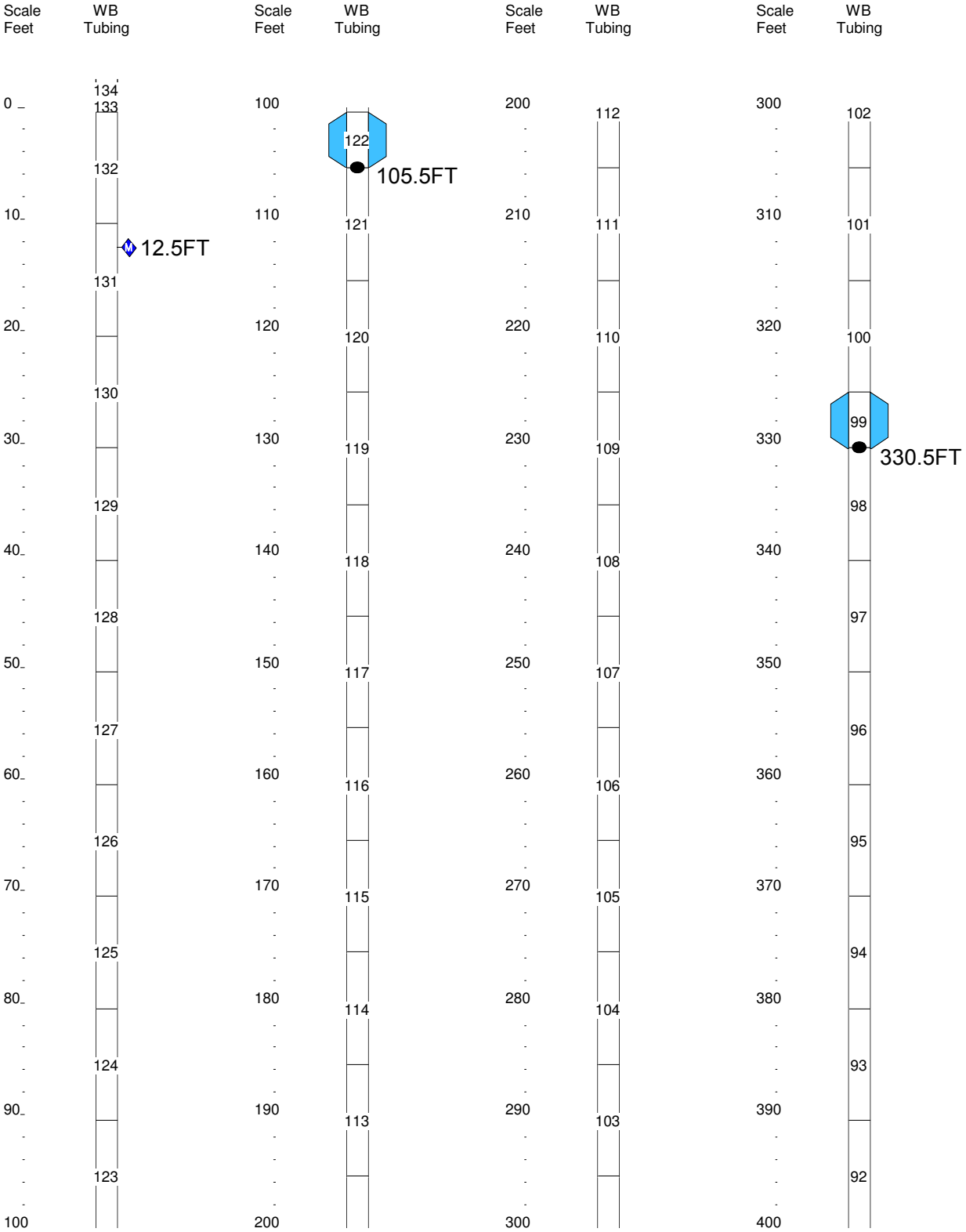

NORTHING RECTANGULAR VIEW - WB-02
Florence Copper
Florence Copper
Drift Distance = 8.91 Feet
Drift Bearing = 162.7 Degrees
True Vertical Depth = 1170.22 Feet
Depth (ft)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
199.91'
399.81'
599.71'
799.61'
999.52'
1170.22'
-10
-8
-6
-4
-2
0
2
4
6
8
10
<--South North--> (ft)
Date of Survey: Thursday - April 19, 2018
Balanced Tangential Calculation Method
Southwest Exploration Services, LLC (480) 926-4558

APPENDIX J

Downhole Equipment

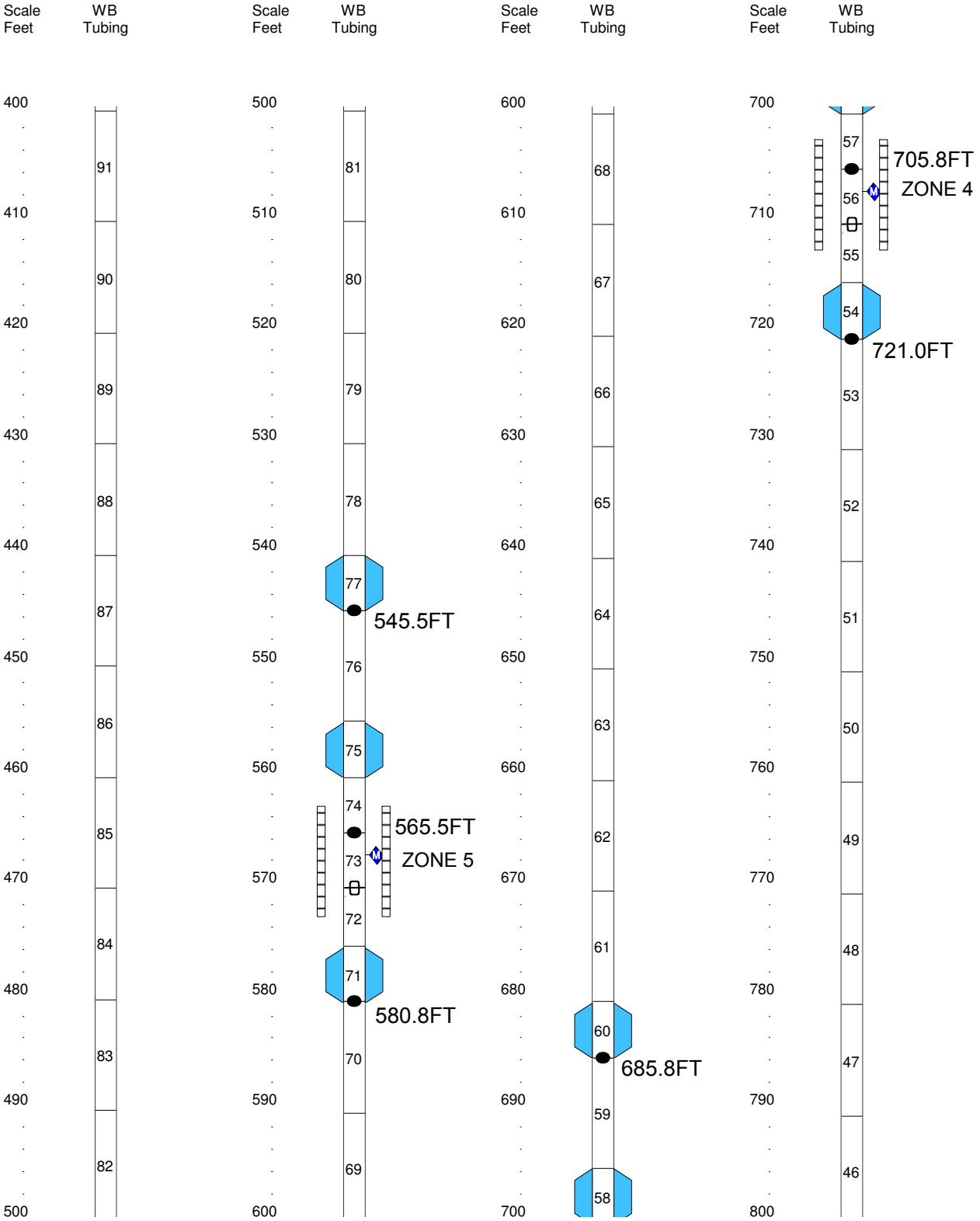
Summary Completion Log
Florence Copper Inc.

Job No: WB957
Well: WB-02



Summary Completion Log
Florence Copper Inc.

Job No: WB957
Well: WB-02



Summary Completion Log
Florence Copper Inc.

Job No: WB957
Well: WB-02